All February Purchasing Indicators Up Over January

The economic tempo is stepping up, as all indicators of activity rose in February at a greater rate than in January. New order bookings, production, and employment all enjoyed strong hikes, growing at the highest rates in close to a year. Inventory rebuilding is beginning, and lead times are being extended by stronger overall economic growth. While price increases continued, at a higher rate than in January, they pose no immediate threat to a continuation of the current expansion.

The fifth year of expansion has begun on a very positive note, with broad advances by all economic indicators. The growth pause of the fourth quarter has been replaced by an economy poised for a shift into high gear. The upward tilt of the growth curve undoubtedly reflects a combination of increased export demand, caused by a falling dollar, and inventory rebuilding to meet higher demand. Further inventory building should continue to boost growth during the first half of the year. Barring unexpected external shocks, Arizona's economy probably will expand at a higher rate in 1987 than the mediocre performance of 1986, when growth came close to stalling.

Table 1 presents the results of the February survey of Arizona purchasing managers. Analysis of these results follows.

PRICES

Prices paid for purchased items went up in February at a somewhat higher rate than in January. Prices have been trending up over the past four months, and the February increase was the largest since last June. Inflation is starting to pick up speed, due to the jump in energy prices, but it still is under control relative to 1983 and 1984, the first two years of the expansion.

DELIVERY TIME

Delivery time on shipments from vendors continued to stretch, following January's unusually low lead time increase. Vendor lead times are feeling the pressures of the higher economic growth rate.

INVENTORY LEVELS

Inventory levels of purchased materials grew in February at the highest rate since last October. Business inventories remained lean through 1986. Now, as new orders advance, action is being taken to replenish inventories, a primary reason for the strong production increases. If inventory building continues, which appears likely in support of higher new order and production rates, it will further stimulate economic growth.

NEW ORDERS

New orders received by Arizona firms continue to accelerate, with the largest monthly advance since March 1986. The increases in the incoming order rate have intensified steadily over the past three months as the economy picks up steam.

PRODUCTION

Production registered a good jump, building on the new order gains. February's increase was the greatest since last April, attesting to the strength of the current upswing.

EMPLOYMENT

Employment enjoyed a large increase – four times greater than the January growth rate and the largest since last May. Further employment gains are likely over the next several months as firms take steps to boost their output to meet growing demand.

PURCHASES

Purchases of materials and supplies were up in February and at the highest monthly increase rate since last March. Purchase actions started to intensify in December and have registered a strong increase in each of the past three months.

– Harold Fearon

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

Arizona Purchasing Survey

Now in its 25th year of monthly reporting, Dr. Harold Fearon's survey of Arizona business conditions utilizes data from a questionnaire sent to members of the purchasing management associations of Arizona and southern Arizona. It asks them to indicate the direction of activity - higher, unchanged, or lower - of seven key measures of economic activity in the month just ended. These purchasing managers deal daily with supply, demand, and price factors in the marketplace; their aggregate readings have accurately charted the state's economic course for two decades, providing timely data on turning points.

TABLE 1
FEBRUARY PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (February compared to January)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	29	67	4
Delivery time from vendors	24	66	10
Purchased materials inventory level	34	40	26
New orders received	42	39	19
Production	37	52	11
Employment	23	70	7
Purchases	48	35	17

Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona.

Arizona Leading Index Continues Steady Climb in January

With a 0.1 percent gain during January, the Arizona Index of Leading Economic Indicators rose between 0 and 0.3 percent for the sixth consecutive month – the longest period of stability since early 1983. The index set a new record in each of those months, reaching 110.5 in January, up from a revised 110.4 in December (see Figure I).

During the six months ending in January, the diffusion index – the percentage of advancing components – generally registered between 50 and 60 percent. Six of the 10 components rose during January, none by a sizable amount (see Table 1).

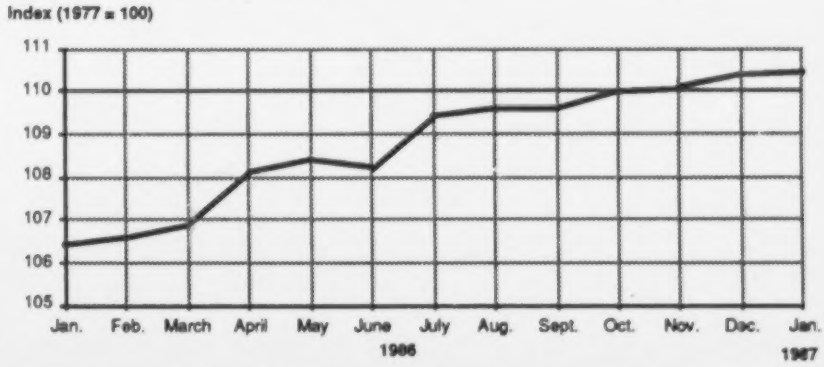
A decline in the number of first-time unemployment insurance claims (a positive indicator) provided the greatest contribution to the index in January, but it did not fully offset a jump in the number of claims filed in December. The national money supply (M2) barely advanced in January, after 11 successive moderate-to-large gains.

The largest negative impacts on the index came from residential building permits and the change in sensitive materials prices; each negated advances posted in December. During the six months through January, the residential building permits component generally fell as the benefit of declining mortgage interest rates wore off. Despite the January decrease, the total six-month change in sensitive materials prices provided more push to the index than any component except M2.

Because of increases in new orders and employment, the net rise during January in the five indicators derived from a survey of Arizona purchasing managers was moderately large. These components have drifted since late 1985, however, with gains in one month negated by subsequent declines.

An early look at the seasonally adjusted February data from the Arizona purchasing managers reveals only a small advance. Gains between December and February still had not offset a large decrease in November. Because these series usually accelerate early in the year, their performance so far during 1987 does not indicate significant strengthening of the Arizona economy beyond the level experienced during most of 1986.

FIGURE I
ARIZONA INDEX OF LEADING ECONOMIC INDICATORS



Source: Center for Business Research, College of Business, Arizona State University

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution+			
	Oct.	*Nov.*	*Dec.*	*Jan.*
Delivery Time*	.07	.03	-.05	-.08
Inventory Levels*	.06	-.14	.08	.03
New Orders*	-.05	-.17	.11	.09
Production*	.01	.03	-.04	-.01
Employment*	.07	-.01	-.08	.09
Residential Building Permits	-.32	-.17	.16	-.12
Unemployment Insurance Claims	-.05	.13	-.27	.20
Average Workweek, Manufacturing	.07	-.05	-.11	.02
Money Supply	.34	.14	.33r	.03
Change in Sensitive Materials Prices	.16	.29	.12r	-.14
OVERALL INDEX	.35	.10	.24r	.12

rRevised

+The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Center for Business Research, College of Business, Arizona State University

OUTLOOK

After the weakest growth of the four-year-plus expansion during fourth quarter 1986, early data for January suggest that the Arizona economy rebounded. Based on the performance of the leading index during 1986, this improvement should continue through early 1987; then, the economy should hold at a growth rate near that experienced during most of 1986. The chance of a recession beginning before late 1987, when the expansion will be the second-longest on record during peacetime conditions, is just 3 percent.

– **Tom R. Rex**
Research Manager

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date Value	Year-to-Date Percent Change from Year Ago
GROSS STATE PRODUCT						
(In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	3rd Qtr.	52.716	2.6	9.1	NA	NA
Arizona - 1982 Dollars	3rd Qtr.	46.176	2.0	7.2	NA	NA
CONSUMER PRICE INDEX (1977 = 100)						
Metropolitan Phoenix	4th Qtr.	193.6	-0.1	1.1	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	Jan.	110.5	0.1	3.9	NA	NA
BUILDING PERMITS						
(Total Dollar Value in Thousands)						
Maricopa County	Dec.	217,274	-8	-13	3,915,370	-2
Pima County	Dec.	50,622	1	65	791,870	5
Balance of State	Dec.	37,949	-21	-11	675,895	0
Arizona	Dec.	305,845	-9	-5	5,383,135	-1
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	Dec.	1,848	-1	-34	44,108	-17
Pima County	Dec.	1,417	107	197	12,702	5
Balance of State	Dec.	731	-19	-30	11,947	-28
Arizona	Dec.	3,996	15	-7	68,757	-16
HOME SALES						
Maricopa County - Number	Jan.	4,740	-27	25	,4,740	25
Maricopa County - Median Price	Jan.	78,150	-2.1	7.1	78,150	7.1
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	4th Qtr.	98	3.2	18.1	NA	NA
Metropolitan Phoenix - Resale Homes	4th Qtr.	114	7.5	18.8	NA	NA
MORTGAGE INTEREST RATES						
(Conventional, 30-year, Fixed-rate)						
Maricopa County	Feb.	8.9	-2.2	-15.2	NA	NA
POPULATION ESTIMATES						
(In Thousands)						
Maricopa County	4th Qtr.	1,942	1.0	4.5	NA	NA
Arizona	4th Qtr.	3,392	0.9	3.8	NA	NA
ELECTRICAL POWER SALES						
(In Millions of Kilowatt Hours)						
Arizona	Jan.	3,112	9.3	15.7	3,112	15.7

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University

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'86-'87 Winter Residents Spend $400 Million in Valley

An estimated 200,000 seasonal residents were living in the Phoenix metropolitan area at the height of the 1986-87 winter season in February. During the entire season, they injected approximately $400 million into the local economy. These figures are derived from a 1987 survey by the ASU College of Business and from information on Valley "snowbirds" included in Western Savings' *Forecast 1986*.

Local businesses and public agencies often need information about the Phoenix area's winter resident population for use in planning activities. Unfortunately, no government agency systematically monitors seasonal migration, although they track permanent migration flows.

For the past four years, ASU College of Business researchers have surveyed the Valley's winter residents of mobile home and travel trailer/RV parks (the most popular types of accommodation among area snowbirds). Initially a census of parks in the Mesa/Apache Junction vicinity in 1984, the geographic scope expanded until the census encompassed the entire Phoenix metropolitan area in 1986. This article presents the findings of the 1986-87 research project.

SURVEY METHODOLOGY

To conduct the survey of parks, researchers used a list of Valley mobile home and travel trailer parks that they update annually with information from the Phoenix Metropolitan Housing Study of Mountain West Research and local planning departments. Since the 1986 survey indicated that few seasonal residents choose to live in parks located in south or central Phoenix, information

See "Snowbirds," page 2

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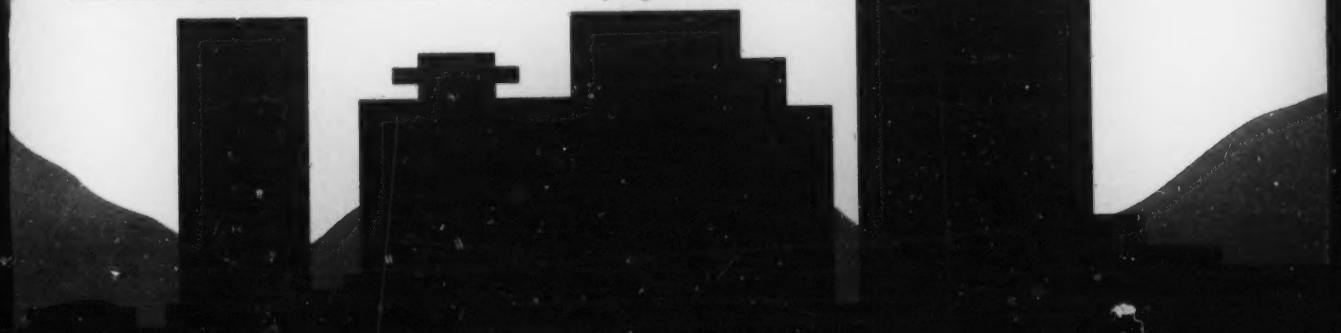
'85 Maricopa County Special Census Report

Population Tops 1.8 Million; Pace Continues

More than 1.8 million people resided in Maricopa County during October 1985, according to the special census, an increase of 330,000 from the 1.5 million population count of 1980. The pace of growth has continued, with the number of county residents topping an estimated 1.9 million at the end of 1986.

Because the allocation of state tax revenues is partially based on population, this rapid growth results in fiscal gain for local governments, the primary reason that the Maricopa Association of Governments contracted for a special census with the U.S. Census Bureau. A welcome byproduct of the special census is updated demographic information about each city and town as well as the unincorporated areas of Maricopa County.

See "Census," page 4



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MAY 1987

"Snowbirds," from page 1
for those areas was not updated for the 1986-87 season.

During the second and third weeks of February 1987, the ASU Survey Research Laboratory called the owners or managers of parks in the west, north, and east Valley to ascertain the number of spaces, occupancy levels, and proportion of winter residents in their parks. The surveyors did not contact winter residents staying in motels, hotels, apartments, houses, condominiums, with relatives/friends, or camping on public lands. Thus, the park census provides information on a major segment of all winter residents rather than a count of the entire seasonal population.

TABLE 1
WINTER RESIDENTS IN METROPOLITAN PHOENIX MOBILE HOME AND TRAVEL TRAILER/RV PARKS
1987 Census, By Geographic Area

	East	Phoenix	West	Total
Number of Mobile Home Spaces	31,622	17,416	10,625	59,663
Occupancy Rate (percent)	85%	94%	87%	88%
Number of Travel Trailer and RV Spaces	31,661	2,492	3,411	37,564
Occupancy Rate (percent)	90%	93%	74%	89%
Number of Occupied Spaces	55,420	18,678	11,767	85,865
Percent of Spaces Occupied by Winter Residents	72%	24%	22%	55%
Number of Winter Resident Households	39,915	4,457	2,634	47,006

Source: Census conducted by the authors and the ASU Survey Research Laboratory, February 1987.

TABLE 2
WINTER RESIDENT HOUSEHOLDS:
NUMBER AND PERCENTAGE OF EACH TYPE
Metropolitan Phoenix, February 1987

	Number	Percent
Mobile Home/Travel Trailer/RV Park	47,000	47
Apartment	23,000	23
Single Family Home/Condominium	15,000	15
Hotel/Motel	8,000	8
Friends/Relatives	7,000	7
TOTAL	100,000	100

Sources: Forecast 1986, Snowbird Survey, by Western Savings and Datapol, February 1986; and calculations by the authors.

SURVEY RESULTS

Parks in the Phoenix metropolitan area, including Apache Junction, had 60,000 mobile home spaces and 38,000 travel trailer/RV spaces – a total of nearly 100,000 spaces. The proportion of occupied spaces in all parks averaged nearly 90 percent; and, based on census responses, an estimated 55 percent of occupied spaces Valleywide were home to seasonal residents. With more than 85,000 occupied spaces, this proportion implies 47,000 winter resident households in mobile home, travel trailer, and RV parks in the Valley. Assuming an average of two people per household, this estimated number of households represents a park population of 94,000 seasonal residents during February 1987.

Table 1 summarizes the results of the 1987 park census. The data presented by geographical area reveal that the Valley's winter resident population is heavily concentrated in the East Valley. Not only are 84 percent of the travel trailer/RV spaces and 53 percent of all mobile home spaces located there, but the proportion of spaces occupied by winter residents is much higher in the East Valley: 72 percent versus 23 percent in the other parts of the Valley. Thus, 85 percent of seasonal resident households staying in Valley parks were living in the East Valley (see Figure 1).

TOTAL WINTER RESIDENT POPULATION

While the ASU park census provides information on only one segment of the Valley's total seasonal population, Western Savings' *Forecast 1986* study collected data relating to the entire winter resident population, regardless of type of accommodation. The information concerning living arrangements indicates that some 47 percent of the winter residents interviewed resided in mobile home, travel trailer, or RV parks in 1986 (Table 2). If this figure is representative of the seasonal population residing in the Valley during February 1987, then these *Forecast 1986* data suggest a total of 100,000 winter resident households or 200,000 people at the peak of the 1986-87 winter season. Since some winter visitors spend only part of the season in the Valley, then move on, to be replaced by other seasonal residents, the overall head count for the entire 1986-87 winter season must be even more than 200,000.

ECONOMIC CONTRIBUTION

Using the 47,000-household estimate of park residents and assuming an average length of stay of four months, with average monthly expenditures per household of $1,000, the seasonal residents staying in Valley mobile home, travel trailer, and RV parks injected $188 million into the local economy. For the Valley's entire winter resident population, the same assumptions and a total seasonal population of 100,000 households lead to an estimate of $400 million in expenditures during the 1986-87 season.

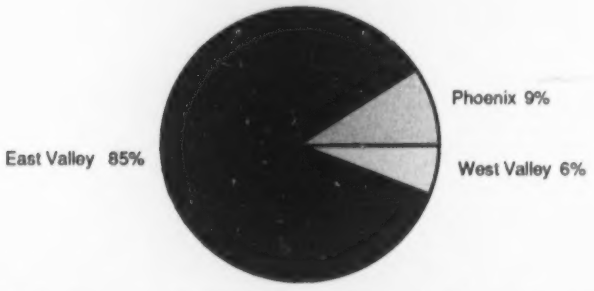
Since the majority of winter residents stay in the East Valley, their economic impact most directly affects the business community in that portion of the Phoenix metropolitan area. The stimulus provided by the spending of seasonal households is particularly important to the economic viability of many east Mesa and Apache Junction businesses. The peak seasonal population of the Apache Junction area, for example, is several times larger than the 14,000 permanent residents enumerated in the 1985 special census.

WINTER VISITORS OR PART-TIME RESIDENTS?

While the Phoenix metropolitan area is generally considered a "home away from home" for the 200,000 winter residents, many of these households actually spend more than half the year in the Valley. The *Forecast 1986* survey reported that one-fifth of all respondents stayed six months or longer in Arizona.

A supplemental question was added to the 1987 park survey to

FIGURE I
GEOGRAPHIC DISTRIBUTION, WINTER RESIDENTS OF MOBILE HOME AND TRAVEL TRAILER/RV PARKS
1987 Census



Source: Census conducted by the authors and the ASU Survey Research Laboratory, February 1987.

TABLE 3
DURATION OF 90 PERCENT OR MORE OCCUPANCY
By Type of Park (Percent), East Valley, 1985-86 Season

Months	Mobile Home Parks	Travel Trailer/ RV Parks	Mixed Parks	All Parks
1	0.0	2.9	0.0	0.7
2	0.0	2.9	2.5	2.0
3	5.4	26.5	7.4	11.2
4	5.4	17.6	7.4	9.2
5	10.8	11.8	13.6	12.5
6	21.6	20.6	35.8	28.9
7+	56.8	17.6	33.3	35.5
TOTAL	100.0	100.0	100.0	100.0
Median	6-7 months	5-6 months	4 months	5-6 months

Source: Census conducted by the authors and the ASU Survey Research Laboratory, February 1987.

ascertain the number of seasonal households staying six months or more in Valley mobile home, travel trailer, and RV parks. Concentrating on the East Valley, these data show that approximately 38 percent of the seasonal households living in mobile home parks and 30 percent of those residing in travel trailer/RV parks stay six months or more. These proportions imply that more than 14,000 East Valley mobile home/travel trailer/RV households spent more than half of the year in Arizona.

Since the first U.S. census in 1790, population counts have been based on the concept of "usual place of residence" – the place a person regards as his or her home. The purpose is to assure that all persons are enumerated only once and in only one location. Unfortunately, this approach does not provide a realistic count of the resident population for areas that are the destination of many part-time residents.

This discrepancy has practical significance in Arizona, where tax revenues are distributed on the basis of permanent population. State law (A.R.S. 42-1341) provides for the distribution of revenues based on population counts from either the last decennial census or a mid-decade (special) federal census, both based on the "usual place of residence" approach.

Given the growing magnitude of seasonal migration, the U.S. Census Bureau has been evaluating possible modifications to the residency rules for future censuses. State and local government agencies that draft relevant regulations should also take into consideration the large number of part-time residents in many Arizona communities.

The seasonal variation in population of the East Valley, where most parks catering to winter residents are located, is shown in Table 3. Of all responding East Valley parks, the typical park was fully occupied (an occupancy level of 90 percent or more) only five months of the year. This seasonality was particularly evident in the travel trailer/RV parks, which were fully occupied for only four months of the 1985-86 season. Slightly more than one-half of East Valley mobile home parks had 90 percent occupancy levels for more than half of the year, but the number of residents varied substantially by season.

STATEWIDE PERSPECTIVE

Estimates of the number and expenditures of winter residents of the Phoenix metropolitan area – 200,000 people spending $400 million – demonstrate the importance to the local economy of the annual influx of snowbirds. However, the Valley of the Sun is not the only area in Arizona that plays host to large numbers of seasonal residents each winter. The communities along the Colorado River attract an increasing number of snowbirds, with the Yuma area serving as winter home to 40,000 seasonal residents, according to the Yuma Chamber of Commerce. The Tucson area and smaller communities in Southern Arizona, such as Green Valley and Casa Grande, are also popular destinations.

For the first time in 1987, ASU researchers expanded the winter resident survey project to include the mobile home, travel trailer, and RV parks in Pima and Pinal counties. The results of these surveys will be reported in an upcoming issue of *Arizona Business.*

– Stephen K. Happel
– Timothy D. Hogan

Dr. Happel is Associate Professor of Economics and Dr. Hogan is Professor of Economics and Acting Director of the Center for Business Research in the ASU College of Business.

The authors gratefully acknowledge: funding from the Arizona Department of Commerce, Arizona Public Service Company, Mountain Bell, Salt River Project, and Western Savings; the efforts of the Arizona State University Survey Research Laboratory; the cooperation of the park owners/managers who responded to the survey; and the research assistance of Elmer Pflanz and Pat Morgan.

This article reports on part of ASU's ongoing seasonal migration research. For more information, contact either Dr. Happel at 965-5001 or Dr. Hogan at 965-3961.

"Census," from page 1

GEOGRAPHIC DISTRIBUTION

Since cities and towns within the county were the primary "customers" for the census information, data collection efforts were organized toward providing population statistics on each municipality. Table 1 presents the population counts for each city and town in Maricopa County, as well as for several recognized unincorporated communities and the remaining unincorporated areas in the north, northwest, west, and southeast regions of the county. For comparison, Table 1 includes 1980 population counts and measures of growth for the 1980-85 period.

Of the individual cities, Phoenix gained the most residents during the 1980-85 period, 92,000, a 12 percent increase. Mesa's growth was nearly as great, 87,000, a 57 percent jump.

Geographic Boundaries

The 1985 special census counts were tabulated to provide information for each municipal unit in Maricopa County on the basis of their 1985 boundaries. In some cases, these boundaries were different than in 1980. For this article, data for the unincorporated portion of Maricopa County have been tabulated to provide population statistics for five recognized communities (Fountain Hills, Litchfield Park, Sun City, Sun City West, and Sun Lakes).

The remaining unincorporated areas were grouped into four geographic regions: *North* – the unincorporated areas of northern Maricopa County east of the Agua Fria River to the eastern county line but not including the census tract containing Fountain Hills; *Northwest* – west of the Agua Fria river and north of Bell Road but not including the Sun City or Sun City West census tracts; *West* – south of Bell Road and west of the Peoria, Glendale, and Phoenix city limits but not including the Sun City census tracts; *Southeast* – the southeast corner of the county, including the area south of South Mountain but not the Sun Lakes census tract.

One-half of the county's total population rise during the first half of the 1980s, an increase of 162,000 people, occurred in the southeast Valley. More than 500,000 people resided there in 1985.

While the absolute numbers of new residents were not as large, the growth rates experienced by several smaller communities far outpaced those of their bigger neighbors. The populations of Peoria, Chandler, and Gilbert more than doubled during the 1980-85 period, as did those of unincorporated Sun City West, Sun Lakes, and Fountain Hills.

Many residents of Maricopa County have chosen to live outside city or town limits. The 1985 special census figures show that 128,000 people, 7 percent of the county's population, live outside the boundaries of recognized communities.

RACIAL/ETHNIC COMPOSITION

The 1985 special census revealed no substantial changes in the overall racial/ethnic mix of Maricopa County. The proportions of Blacks (3.2 percent), Native Americans (1.4 percent), and Hispanics (13.2 percent) changed very little during the early 1980s. Only a relatively large increase in the number of Asian/Pacific Islander residents (growing from 13,000 in 1980 to 24,000 in 1985) caused the proportion of minorities to rise slightly between 1980 and 1985.

The racial/ethnic populations are not distributed evenly throughout the Phoenix metropolitan area. Nearly three-quarters of the Black population, more than one-half of the Hispanics, and almost one-half of both the Asian and Indian populations live within the city of Phoenix. Many Asians/Pacific Islanders also reside in the southeast Valley, while most of the American Indian population living outside the city of Phoenix reside in Guadalupe, the unincorporated northern areas (where both the Fort McDowell and Salt River Indian Reservations are located) or the southeast portions of the county (the Gila River Indian Reservation). The Hispanic population living outside Phoenix is concentrated in the western part of Maricopa County.

AGE DISTRIBUTION

Over the 1980-85 period, the age composition of the county population changed considerably. While the proportion of young children (under 5) remained slightly less than 8 percent, the declines in U.S. fertility during the 1970s caused a drop in the proportion of children (people under 18) in the overall population from 28 to 26 percent during the 1980-85 period. At the other end of the age scale, the number of county residents 65 and older grew faster than the overall population, leading to a gain in the proportion of elderly from 10 to 12 percent of all county residents in 1985.

Much of the increase in the 65 and older population resulted from retirement migration to the Phoenix metropolitan area, and many of these

Special Census Data Available on Diskettes

For this article, data from the 1985 Maricopa County special census were transferred to microcomputer diskettes for processing with LOTUS 1-2-3. Four files were created:

- Population counts by race/ethnic group plus housing counts for each census tract;
- Population counts by race/ethnic group plus housing counts by city, including all tracts within municipal limits;
- Population counts by age group for each census tract;
- Population counts by age group and city, including all tracts within municipal units.

Copies of these LOTUS files may be ordered for $10 per diskette [files 1 and 2 fit on a single diskette; files 3 and 4 each occupy a separate diskette] by writing to the Center for Business Research, College of Business, Arizona State University, Tempe, AZ 85287. Please include your return-mailing address and a check for the appropriate amount, payable to the Center for Business Research.

migrants settled in the retirement communities surrounding Phoenix. The elderly populations of Sun City and Mesa both exceed 30,000, and the smaller retirement communities of Sun City West and Sun Lakes also have grown rapidly. Substantial numbers of the 65 and older population also reside in outlying areas – Carefree, Wickenburg, and the southeastern portion of the county.

Since many younger households have chosen to locate in the western and southeastern suburbs of the metropolitan area, these communities have a much different age distribution than the county average, with fewer elderly and more children. This pattern is particularly evident in the west Valley – Avondale, Glendale, Peoria, and the surrounding unincorporated areas – but it also characterizes the fast-growing communities of Chandler and Gilbert in the southeast Valley.

SUPPLEMENTAL DATA

Although the mid-decade special census provides updated information, which is valuable in a rapidly growing area like metropolitan Phoenix, the types of data collected were limited. For example, the census includes none of the detailed socioeconomic, demographic, and housing information needed by businesses, government agencies, and researchers. Those interested in such data must rely on the information available from the 1980 census or from more recent local surveys, such as *Inside Phoenix* or *Forecast 1987*.

Arizona officials and the U.S. Census Bureau already are preparing for the 1990 census. The Census Bureau has begun field tests to decide what questions to ask and how to ask them. The Arizona Department of Economic Security and the Census Bureau's regional staff are developing the necessary geographic information. One valuable outcome of these planning activities will be the availability from the 1990 census of more detailed subcounty data for Arizona's non-metropolitan counties.

– Timothy D. Hogan

Dr. Hogan is Professor of Economics and Acting Director of the Center for Business Research in the ASU College of Business.

TABLE 1
MARICOPA COUNTY SPECIAL CENSUS INFORMATION
October 1985 Counts and 1980-85 Percent Changes

	1985 Population	Number Change 1980-85	Percent Change 1980-85	Percentage of 1985 Population: Black	Asian/ Pac. Isl.	Indian/ Nat. Am.	Spanish Origin	% of 1985 Pop. Under 18	% of 1985 Pop. 65+
Avondale	9,704	1,536	18.8	4.9	0.8	0.6	46.1	36.1	6.7
Buckeye	3,779	345	10.0	5.0	1.5	1.3	21.9	34.0	9.2
Carefree	1,518	*	*	0.1	0.1	0.2	1.4	9.5	31.4
Chandler	63,817	34,144	115.1	2.2	1.8	1.0	16.0	32.4	4.4
El Mirage	3,908	-399	-9.3	2.5	0.1	0.1	80.2	41.5	5.2
Gila Bend	1,999	414	26.1	4.0	1.4	3.9	40.9	33.0	6.3
Gilbert	12,102	6,385	111.7	1.2	0.6	0.3	12.2	36.4	3.5
Glendale	122,392	25,220	26.0	2.0	1.8	0.6	12.7	30.0	7.4
Goodyear	4,598	1,851	67.4	7.7	1.2	2.0	19.1	21.8	5.4
Guadalupe	4,609	103	2.3	0.3	0.0	46.1	95.4	44.9	4.5
Mesa	239,587	87,134	57.2	1.5	1.1	0.7	8.6	28.1	12.7
Paradise Valley	11,510	425	3.8	0.1	1.2	0.1	2.1	26.2	10.9
Peoria	27,598	15,291	124.2	1.7	1.0	0.8	18.0	29.3	14.3
Phoenix	881,640	91,936	11.6	4.9	1.3	1.3	15.6	26.8	9.2
Scottsdale	108,447	19,825	22.4	0.5	0.9	0.4	3.4	18.5	14.3
Surprise	4,020	297	8.0	2.3	0.1	0.2	71.4	40.6	5.3
Tempe	132,942	26,022	24.3	2.6	3.0	0.8	8.2	22.0	5.7
Tolleson	4,438	5	0.1	0.7	0.9	0.7	71.0	36.8	7.3
Wickenburg	3,925	390	11.0	0.0	0.2	0.5	5.6	19.3	31.4
Youngtown	2,287	33	1.5	0.1	0.2	0.0	2.4	4.8	60.0
Non-incorporated	193,136	*	*	1.0	0.5	3.7	8.4	19.6	32.6
Fountain Hills	5,797	3,026	109.2	0.2	0.4	0.2	1.5	21.1	13.3
Litchfield Park	3,747	90	2.5	0.6	2.8	0.3	4.3	26.3	11.7
Sun City	39,871	-634	-1.6	0.2	0.1	0.0	0.4	0.1	82.8
Sun City West	10,450	6,678	177.0	0.3	0.1	0.0	0.3	0.0	60.8
Sun Lakes	5,030	3,105	161.3	0.3	0.1	0.0	1.1	0.3	44.2
North	27,199	**	**	0.7	0.3	13.9	4.8	28.7	10.1
Northwest	5,537	**	**	0.5	0.4	0.9	14.6	28.0	15.6
West	39,893	**	**	3.6	1.0	1.9	22.9	32.9	5.3
Southeast	55,612	**	**	0.4	0.4	4.4	8.2	23.7	26.0
COUNTY TOTALS	1,837,958	328,694	21.8	3.2	1.3	1.4	13.2	26.0	12.0

*Not possible to calculate due to incorporation of Carefree subsequent to 1980.
**Not possible to calculate due to annexations subsequent to 1980.

Source: Compiled by the Center for Business Research, College of Business, Arizona State University from a U.S. Census Bureau computer tape file.

Valley Inflation Makes Dramatic Re-entrance

Spurred by exploding gasoline prices, seasonally adjusted inflation in the Phoenix metropolitan area soared 2.1 percent during first quarter 1987 – an increase equivalent to that of the six prior quarters combined. Before seasonal adjustment, inflation measured 2.3 percent, the largest quarterly gain since 1981. The Metropolitan Phoenix Consumer Price Index jumped to 198.0 (1977 = 100), 3.3 percent higher than the index for first quarter 1986.

Gasoline prices, which surged 25 percent during the first quarter, were solely responsible for the sharp acceleration in the inflation rate. Excluding gasoline, the CPI advance was identical to that of fourth quarter 1986 and less than in the second and third quarters of 1986.

UNDERLYING INFLATION RATE

Oscillations in gasoline prices have disguised the true rate of inflation. Instead of a sharp swing from 6 percent in early 1985 to 1 percent in 1986, back up to more than 3 percent in first quarter 1987, the underlying annual inflation rate (all items minus gasoline) has fluctuated less severely (see Figure I).

The underlying rate in 1984 and early 1985 was higher than the equivalent rate for the nation because of a series of local price shocks, mostly from health insurance and used car increases. However, the local rate fell to the prevailing national rate of 3 to 4 percent when these shocks ceased. (In addition, housing inflation slowed, due to stabilization of apartment rents and utility costs).

Though the underlying rate rose slightly during first quarter 1987, it likely will remain near 4 percent throughout 1987. In contrast, the overall inflation rate could accelerate to near 6 percent by year-end 1987, strictly because of higher gasoline prices. (This forecast assumes only modest further increases in gas prices over those prevailing on April 1).

COMPONENT INDEXES

Other than transportation, none of the major categories experienced a first quarter 1987 change much different from the rates measured in the six prior quarters.

Food and Beverages

For the second consecutive quarter, prices of food and beverages barely changed (see Table 1). Food away from home, a subcategory that rarely declines, did so for the second straight time. Food at home prices also fell (see Table 2).

Grocery prices dropped mainly because of a large 2.7 percent decrease in the prices of meats, poultry, fish and eggs. Prices of beef, pork, poultry and eggs all declined. Other food at home, another subcategory, also went down.

Housing

Housing costs again rose modestly. Though homeowners' costs increased 1.3 percent, renters' costs declined 1.1 percent. Apartment rents, held in check by double-digit vacancy rates, dropped for the third time in the last four quarters.

Fuel and utility costs were slightly lower. Compared to first quarter 1986, less than 1 percent inflation was measured.

Transportation

Gasoline price hikes caused most of the huge 8.1 percent surge in the transportation category. Other subcategories contributed, however. Public transportation costs jumped 6.1 percent (but were only 2.1 percent higher than they were one year earlier). Used car price inflation continued to accelerate, with prices rising 2.8 percent during the first quarter.

In contrast, some subcategories declined, including vehicle parts and equipment, vehicle rental and vehicle finance charges. The latter dropped for the ninth time in the last 10 quarters.

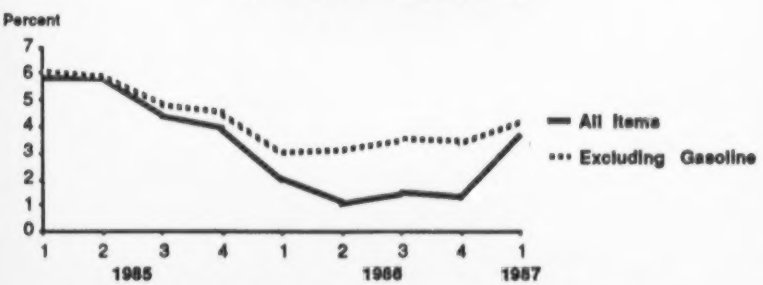
Medical Care

Health care inflation remained comparatively moderate for the seventh consecutive quarter, with a 1.8 percent gain placing the index 5 percent higher than it was one year earlier. Increases in health insurance premiums were not as large as usual during the first quarter. Little change was measured in prescription drug prices and hospital charges.

Other Categories

Apparel and upkeep costs continue to swing from quarter to quarter, with the first quarter decrease more than negating the previous quarter's advance. Entertainment costs again rose rapidly, pushed by large increases in admission fees, member-

FIGURE I
METROPOLITAN PHOENIX CPI
Seasonally Adjusted Percent Change
From Same Quarter, Prior Year



Source: Center for Business Research, College of Business, Arizona State University, in co-sponsorship with Valley National Bank.

ship dues and fees for participant sports.

COMPARISON AREAS

Comparisons shown in Table 3 are somewhat misleading because the quarter measured for the United States is the December through February period. Further increases in gasoline prices in March should push the national inflation rate higher. Still, the price hike in the Phoenix area will remain greater than the national average. Just as local gasoline prices were slow to descend during early 1986, before eventually dropping as much as in most areas, they were quick to climb in early 1987. Otherwise, local inflation during the first quarter was comparable to the national average, with a smaller gain in the food and beverages category offsetting larger advances in the less important categories of medical care, entertainment and other goods and services.

Comparisons to one year ago no longer will be available for Denver and San Diego. As part of the new methodology implemented in January, the U.S. Department of Labor is producing an index only twice per year, instead of six times, for many metropolitan areas. Compared to the entire nation, the Phoenix area's annual inflation was lower except in the transportation and entertainment categories.

OUTLOOK

An unexpectedly sharp increase in gasoline prices forces an upward revision in the 1987 inflation forecast. The CPI almost certainly will measure another sizable boost in gasoline prices during the second quarter. Even if those prices then firm, the all-items inflation rate probably will exceed 5 percent by the end of the year. The annual average increase then would be near 4.5 percent instead of the 3.5 percent rate previously forecast. However, because the underlying rate will not have accelerated as much, Phoenix area inflation could stabilize near 5 percent in 1988.

– Tom R. Rex
Research Manager

TABLE 1
PERCENT CHANGES IN
METROPOLITAN PHOENIX CONSUMER PRICE INDEX

		Seasonally Adjusted from Preceding Quarter				
Expenditure Category	*Relative Importance*	*1st 1986*	*2nd 1986*	*3rd 1986*	*4th 1986*	*1st 1987*
ALL ITEMS	100.0	-0.2	0.4	0.6	0.5	2.1
Food and Beverages	18.7	0.8	1.0	2.3	0.1	-0.2
Housing	39.5	0.7	0.2	1.0	0.4	0.5
Apparel and Upkeep	4.8	-3.3	5.6	-2.5	1.9	-2.5
Transportation	21.2	-2.5	-1.9	-1.1	-0.2	8.1
Medical Care	6.9	1.3	1.7	0.2	1.2	1.8
Entertainment	4.8	-1.7	2.4	-0.8	4.5	2.4
Other Goods and Services	4.3	1.7	0.7	2.1	0.8	2.0

TABLE 2
METROPOLITAN PHOENIX CONSUMER PRICE INDEX
First Quarter 1987

	Index (1977 = 100)		Percent Change from	
Expenditure Category	*Last Quarter*	*This Quarter*	*Last Quarter**	*Year-Ago Quarter*
ALL ITEMS	193.6	198.0	2.1	3.3
Food and Beverages	180.2	181.4	-0.2	2.8
Food	180.5	181.5	-0.4	2.6
Food at Home	178.2	179.7	-0.3	2.9
Cereal and Bakery Products	197.5	203.3	1.4	4.5
Meats, Poultry, Fish, and Eggs	166.9	164.9	-2.7	3.7
Dairy Products	165.7	168.7	1.5	3.6
Fruits and Vegetables	184.1	186.3	1.1	-0.3
Other Food at Home	170.7	173.0	-0.5	2.5
Food Away from Home	182.1	182.0	-0.4	2.2
Housing	203.6	204.3	0.5	2.0
Shelter	222.1	223.1	0.4	2.7
Renters' Costs**	119.3	118.0	-1.1	1.2
Homeowners' Costs**	112.1	113.6	1.3	3.7
Fuel and Other Utilities	168.5	165.6	-0.6	0.9
Gas (piped) and Electricity	181.2	176.2	-0.6	1.2
Household Furnishings/Operations	152.3	155.0	1.9	0.3
Apparel and Upkeep	149.8	146.5	-2.5	1.7
Transportation	175.0	189.0	8.1	4.5
Private Transportation	171.7	186.3	8.3	4.7
New and Used Cars	194.8	200.0	1.7	5.3
Motor Fuels	128.8	158.0	24.9	-9.0
Public Transportation	228.4	232.6	6.1	2.1
Medical Care	272.2	280.1	1.8	5.0
Entertainment	206.1	212.1	2.4	7.6
Other Goods and Services	182.2	185.9	2.0	5.7

*Seasonally adjusted **Base period is second quarter 1983.

TABLE 3
METROPOLITAN PHOENIX AND UNITED STATES
CONSUMER PRICE INDEXES
First Quarter 1987

	Percent Change from Last Quarter*		Percent Change from One Year Ago	
Expenditure Category	*Phoenix*	*United States*	*Phoenix*	*United States*
ALL ITEMS	2.3	1.1	3.3	2.1
Food and Beverages	0.7	1.6	2.8	4.5
Housing	0.3	0.1	2.0	2.4
Apparel and Upkeep	-2.2	-2.2	0.2	2.1
Transportation	8.0	1.9	4.5	-2.9
Medical Care	2.9	1.8	5.0	7.1
Entertainment	2.9	0.5	7.6	2.5
Other Goods and Services	2.0	1.4	5.7	5.7

*Not seasonally adjusted

Source (Tables 1, 2 and 3): Metropolitan Phoenix data compiled by the Center for Business Research, College of Business, Arizona State University, in cooperation with Valley National Bank; other data in Table 3 are from the U.S. Department of Labor, Bureau of Labor Statistics.

1986 Home Prices Vary Valleywide

The 1986 mean home sales price in many areas of metropolitan Phoenix was significantly different from the average for the Valley as a whole. Measuring price on a per-square-foot basis reduced the number of significant deviations from the metro average, but many still remained.

These deviations occur, in part, because home prices, even on a per-square-foot basis, are related to the age and size of the home (see Table 1). Further, home age and size correlate with the neighborhood in which the home is located. However, even after adjusting for home age and size, the mean price per square foot differed geographically.

A number of factors could account for these variations, such as quality of construction, presence of amenities, lot size and neighborhood condition. Lot size has a particular impact on price per square foot of large homes, which frequently are built on big lots.

TABLE 1
1986 MEAN SALES PRICE PER SQUARE FOOT
Resale Single Family Homes
Metropolitan Phoenix

Total Sample	$55
By Year Built:	
1970 or earlier	52
1971-75	52
1976-80	56
1981-85	62
By Size (Square Feet):	
Less than 1,200	57
1,200-1,599	53
1,600-1,999	52
2,000-2,399	56
2,400 or more	74

Source: Center for Business Research, College of Business, Arizona State University; from data supplied by Marketron Services, Inc., Phoenix.

Methodology

This report is based on recorded sales of existing single family homes during 1986, excluding transactions with incomplete or questionable data. Instead of the median sales values normally reported, mean sales values were required for certain statistical tests. The t-test was used to determine the significance of the difference of subgroup means from the overall mean for the Phoenix metropolitan area.

For home sales, the mean sales price generally is greater than the median value because of a relatively few very expensive homes. The mean price per square foot of most subgroups was $2 to $3 greater than the median value.

GEOGRAPHIC VARIATION

In seven districts, the 1986 mean price per square foot was significantly higher than the metro average (see Table 2). However, in Chandler/Gilbert and Mid-town Phoenix, the difference was less than $5 per square foot and was not consistent across all housing ages and sizes. Further, in Mid-town Phoenix, some of the homes were purchased for the commercially zoned land they occupied.

In the five remaining areas, houses of nearly all sizes and ages were more expensive. The areas stretch contiguously from North Central Phoenix through the East Camelback area and Paradise Valley to North Scottsdale. Housing in Sun City West also was universally more expensive.

In nine districts, the mean price per square foot was significantly lower than the metro average, but in Northwest Phoenix, South Phoenix and Sun City/Youngtown/Peoria, the difference was less than $5 per square foot, with the lower prices applying only to certain housing types.

The remaining districts with lower prices all are located in the West Valley. Houses of virtually all sizes and ages were less expensive in West Central Phoenix, Maryvale and the Christown area. Prices were not as low, nor did the lower prices prevail among all types of housing, in the Metrocenter area, Glendale and the Western suburbs.

Prices in the East Valley – Mesa, Tempe, South Scottsdale – and extending into East Central Phoenix were near the metro average. The northern districts of Deer Valley and North Sunnyslope/Moon Valley also had prices near average.

– Tom R. Rex
Research Manager

TABLE 2
1986 MEAN SALES PRICE
Resale Single Family Homes Only
By Geographic District

District	Price (In thousands)	Price Per Square Foot
North Scottsdale	$173 H	$73 H
South Scottsdale	88	55
Paradise Valley	178 H	72 H
North Sunnyslope/Moon Valley	88	56
Northwest Phoenix	82 L	51 L
Metrocenter	70 L	49 L
Sun City/Youngtown/Peoria	72 L	52 L
Glendale	75 L	50 L
Christown	61 L	45 L
North Central Phoenix	110 H	61 H
East Camelback	84	60 H
East Central Phoenix	67 L	57
Mid-town Phoenix	78 L	58 H
West Central Phoenix	47 L	43 L
Maryvale	58 L	45 L
Downtown/South Central Phoenix	56 L	52
South Phoenix	73 L	53 L
North Tempe	77 L	54
South Tempe	95 H	58
North Mesa	91	56
South Mesa	84 L	55
East Mesa	77 L	54
Chandler/Gilbert	88	59 H
Western suburbs	71 L	50 L
Deer Valley	81 L	56
Sun City West/Rural Maricopa County	100 H	61 H
TOTAL, METROPOLITAN PHOENIX	89	55

H Significantly higher than the mean for all of metropolitan Phoenix.
L Significantly lower than the mean for all of metropolitan Phoenix.

Source: Center for Business Research, College of Business, Arizona State University; from data supplied by Marketron Services, Inc., Phoenix. District designations are copyrighted by the Maricopa County Housing Study Committee.

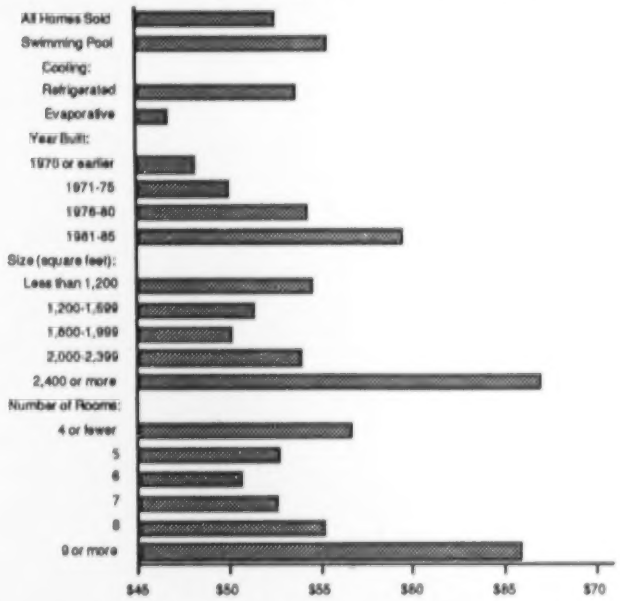
Characteristics Affect Valley Home Values

Certain housing characteristics have a direct impact on the price of a Valley home, even on a per-square-foot basis. Two relationships seem to underlie all others. First, the largest homes – measured by both square feet and number of rooms – have the highest price per square foot, though the smallest homes also are priced above the median (see Figure I). Second, the newer the home, the greater the price per square foot. This relationship holds even though homes built during the 1980s are not larger on average than those constructed during the 1970s.

While some amenities have a relationship with price per square foot, the presence of these amenities is more common in newer and larger homes. Thus, though homes with a swimming pool, for example, sold for a higher price per square foot than homes without a pool, the addition of a pool to an existing home may not impact the home price by any particular amount.

– Tom R. Rex
Research Manager

FIGURE I
MEDIAN SALES PRICE PER SQUARE FOOT, BY CHARACTERISTIC
Resale Single Family Homes, Metropolitan Phoenix, 1986



Source: Center for Business Research, College of Business, Arizona State University

Volume of Real Estate Transactions Rises in Maricopa County

Maricopa County's recorded transactions in most real estate classifications increased during 1986. Generally, the median sales price also rose from the 1985 level (see Table 1). After adjusting for building size, however, price gains – on a per-square-foot basis – usually were not as large.

For example, though the median sales price of apartment complexes was 19 percent higher in 1986 than in 1985, the median price per square foot was only 3 percent greater. Likewise, while the median price of stores jumped 11 percent in 1986, the median square-foot price fell 8 percent from 1985.

Land prices rose 24 percent during 1986, but acreage figures were not available. Some of the increase may have resulted from the sale of larger lots.

– Tom R. Rex
Research Manager

TABLE 1
REAL ESTATE TRANSACTIONS
Selected Categories, Maricopa County

	Number of Sales		Median Sales Price	
		Percent Change		*Percent Change*
Classification	*1986*	*from 1985*	*1986*	*from 1985*
00 – Vacant Land	6,754	14	57,500	24
03 – Multiple Residential	1,105	36	106,500	19
08 – Mobile Homes	1,193	33	38,000	4
11 – Store Buildings	212	3	200,000	11
15 – Office Buildings	120	20	335,000	-14
37 – Warehousing	173	62	400,000	7

Source: Center for Business Research, College of Business, Arizona State University; from data supplied by Marketron Services, Inc., Phoenix.

Source of Data

In addition to recorded sales of single family homes, townhouses and condominiums, the Center for Business Research and Arizona Real Estate Center utilize information on recordings of other types of real estate transactions from Marketron Services, Inc. Each transaction is designated as one of nearly 100 categories, using the Arizona Standard Property Use Classification.

The data are of limited use because many commercial real estate transactions are not legally recorded. Those that are recorded may not be representative of the entire metropolitan Phoenix market.

March Purchasing Indicators Reflect Economic Strength

The Arizona economy recorded an upbeat performance in all areas in March, ending the first quarter on a note of real strength as the expansion enters its fifth year. New orders and production both recorded their highest increase in close to three years. Inventory rebuilding continues, stepping up to its highest rate in well over three years. Employment also registered a healthy gain.

As the economy closes out the first quarter, it has overcome the growth pause evident during the latter half of 1986 and appears ready to upshift smoothly into high gear. The advances in new orders are driving up production rates, necessitating higher inventory levels, which will further intensify the upward spiral. Lead times and employment probably will grow further in the months immediately ahead. Additional price increases are on the horizon, although the likelihood of a return to anything close to double-digit inflation over the balance of the year is remote.

Table 1 presents the results of the March survey of Arizona purchasing managers. Analysis of these results follows.

PRICES

Prices paid for purchased items increased in March at the same rate as in February. The inflation rate began stepping up late in 1986, and the hikes in February and March were the highest since last June. This performance is consistent with that shown by the national raw material price index and signals a return of inflationary pressures in 1987. However, the failure of energy prices to regain their previous high levels likely will curtail inflation below the danger levels experienced during the first two years of the current expansion (1983 and 1984).

DELIVERY TIME

Delivery time on shipments from vendors stretched in March at the same rate as in the previous month. The lengthening of lead times in both February and March is a signal that the economy is tightening up as growing demand begins to remove the slack from vendor operating rates.

INVENTORY LEVELS

Inventory levels of purchased materials jumped up smartly in March, registering the highest one-month increase rate in close to four years (since July 1983). They had been essentially static throughout 1986. Inventory restocking began in January and has been building at a heightened pace in each of the past three months. As new orders and production continue to grow healthier, Arizona firms will find it necessary to build stocks further, fueling growth even more.

NEW ORDERS

New orders received by Arizona firms were up sharply in March, with the largest monthly gain since May 1984. From an almost zero increase rate last November, when the economy looked like it might slide into a recession, new order bookings have shown a strong upward tilt in each of the past four months.

PRODUCTION

Production jumped in March, mirroring the incoming order strength. With the new order rate increasing and the need to rebuild inventory, further production hikes are anticipated over the next few months.

EMPLOYMENT

Employment grew at the same rate as in the previous month. Both the February and March additions to employment were the highest since May 1986. Employment actually experienced slight declines toward the end of 1986, but it now has turned and is moving in a strong upward direction.

PURCHASES

Purchases of materials and supplies advanced in March at the highest rate since May 1984. Purchase actions began to increase in December, and the rate has intensified in each of the past four months, as the economy continues to gain strength.

– Harold Fearon

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

Arizona Purchasing Survey

Now in its 25th year of monthly reporting, Dr. Harold Fearon's survey of Arizona business conditions utilizes data from a questionnaire sent to members of the purchasing management associations of Arizona and southern Arizona. It asks them to indicate the direction of activity - higher, unchanged, or lower - of seven key measures of economic activity in the month just ended. These purchasing managers deal daily with supply, demand, and price factors in the marketplace; their aggregate readings have accurately charted the state's economic course for two decades, providing timely data on turning points.

TABLE 1
MARCH PURCHASING SURVEY

	Percent of Purchasing Managers indicating Each Response (March compared to February)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	29	66	5
Delivery time from vendors	24	67	9
Purchased materials inventory level	40	44	16
New orders received	47	37	16
Production	43	47	10
Employment	27	62	11
Purchases	54	31	15

Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona.

Arizona Leading Index Slips in February

A string of small monthly gains was broken at six by February's 0.2 percent decline in the Arizona Index of Leading Economic Indicators. The index dipped to 110.3 from 110.5 in January (see Figure I).

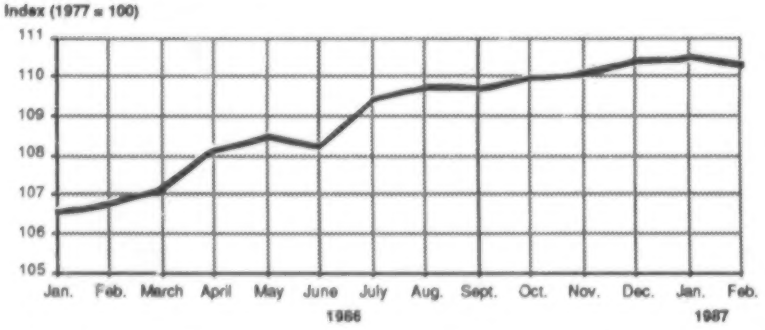
The diffusion index – the percentage of rising components – measured 45 in February, near the proportions recorded during the preceding six months. However, of the three components that changed more than a small amount, two fell (see Table 1), causing the index to change its course.

Both large declines came from the national indicators – money supply (M2) and sensitive materials prices – which generally had been boosting the index in recent months. The decrease in M2 was the largest since mid-1982, but the first since January 1986. Despite this drop, the money supply remained more than 14 percent higher than it was 12 months earlier. Sensitive materials prices fell for the second straight month, following three large gains.

Residential building permits contributed the most to the February index, but this advance only offset January's decline. Though fluctuating from month to month, home building has remained near the level to which it accelerated last spring.

The other components continued to fluctuate in the narrow range they have occupied for more than one year. During the last 12 months, the largest changes occurred in new orders (down 2.5 percent) and inventory levels (down 1.0 percent).

FIGURE I
ARIZONA INDEX OF LEADING ECONOMIC INDICATORS



Source: Center for Business Research, College of Business, Arizona State University

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution†			
	Nov.	*Dec.*	*Jan.*	*Feb.*
Delivery Time*	-.04r	-.06r	-.10r	.08
Inventory Levels*	-.14	.08	.03	-.01
New Orders*	-.17	.11	.09	-.03
Production*	.04r	-.04	-.01	.00
Employment*	-.01	-.09r	.10r	.05
Residential Building Permits	-.17	.17r	-.19r	.25
Unemployment Insurance Claims	.13	-.27	.20	.01
Average Workweek, Manufacturing	-.05	-.12r	.09r	-.09
Money Supply	.14	.32r	.06r	-.21
Change in Sensitive Materials Prices	.28r	.14r	-.18r	-.19
OVERALL INDEX	.06r	.24	.12	-.16

rRevised

†The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Center for Business Research, College of Business, Arizona State University

REVISIONS

Historical data revisions to the two national series, as well as implementation of new standardization factors for all series, led the Center for Business Research to revise the entire history of the Arizona leading index. However, the changes were small in nature and largely offsetting, so the impact on the overall index was insignificant. For example, despite revisions, the indexes for December and January were unchanged.

OUTLOOK

Little significance should be attached to February's decline in the leading index. The diffusion index remained in the indecisive range of 40 to 60 percent. Thus, although the index is not signaling rapid economic growth, the expansion should continue unimpeded through 1987. The chance of a recession beginning before the end of the year is less than 7 percent.

The current expansion then would exceed the peacetime record length of 58 months, set in the late 1970s. Total growth through year-end 1987, however, probably will not break any records.

– Tom R. Rex
Research Manager

MAY 1987

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date Value	Year-to-Date Percent Change from Year Ago
GROSS STATE PRODUCT						
(In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	3rd Qtr.	52.716	2.6	9.1	NA	NA
Arizona - 1982 Dollars	3rd Qtr.	46.176	2.0	7.2	NA	NA
CONSUMER PRICE INDEX (1977 = 100)						
Metropolitan Phoenix	1st Qtr.	198.0	2.3	3.3	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	Feb.	110.3	-0.2	3.3	NA	NA
BUILDING PERMITS						
(Total Dollar Value in Thousands)						
Maricopa County	Jan.	302,148	39	-7	302,148	-7
Pima County	Jan.	36,944	-27	-33	36,944	-33
Balance of State	Jan.	41,910	10	-19	41,910	-19
Arizona	Jan.	381,002	24	-12	381,002	-12
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	Jan.	2,739	48	-19	2,739	-19
Pima County	Jan.	646	-54	-19	646	-19
Balance of State	Jan.	906	23	-14	906	-14
Arizona	Jan.	4,291	7	-18	4,291	-18
HOME SALES						
Maricopa County - Number	Feb.	3,850	-18	0	8,590	12
Maricopa County - Median Price	Feb.	79,500	1.7	6.0	79,000	6.6
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	4th Qtr.	98	3.2	18.1	NA	NA
Metropolitan Phoenix - Resale Homes	4th Qtr.	114	7.5	18.8	NA	NA
MORTGAGE INTEREST RATES						
(Conventional, 30-year, Fixed-rate)						
Maricopa County	March	8.9	0.0	-10.1	NA	NA
POPULATION ESTIMATES						
(In Thousands)						
Maricopa County	4th Qtr.	1,942	1.0	4.5	NA	NA
Arizona	4th Qtr.	3,392	0.9	3.8	NA	NA
ELECTRICAL POWER SALES						
(In Millions of Kilowatt Hours)						
Arizona	Feb.	2,635	-15.3	7.3	5,746	11.7

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University

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1986 Arizona GSP Revised Down

At an inflation-adjusted 4.8 percent, the Arizona Gross State Product (GSP) for 1986 grew much more slowly than previously projected. Adjusted GSP, which excludes mining and agriculture – volatile industries that do not follow the business cycle – rose 5.7 percent; the long-term average is 5.5 percent.

These GSP figures indicate the Arizona economy slowed dramatically during 1986. First quarter growth was quite strong, but increases during the second quarter were much smaller, especially as measured by unadjusted GSP (see Table 1). The downward revision of the annual average increase resulted almost entirely from a third quarter reduction in the rate to near zero from an approximately 8 percent annualized rate. During the fourth quarter, the Arizona gross product declined.

EVALUATION OF 1986 GSP

While the Arizona economy's growth did slow during 1986, the quarterly GSP figures probably do not portray the actual pattern. Estimates of GSP are highly dependent on data produced by the U.S. Department of Commerce, particularly personal income statistics. These 1986 data remain subject to considerable revision.

Data Deficiencies

Though the annual average for 1986 probably is reasonably accu-

See "GSP," page 2

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Population Growth Drives Arizona Economy

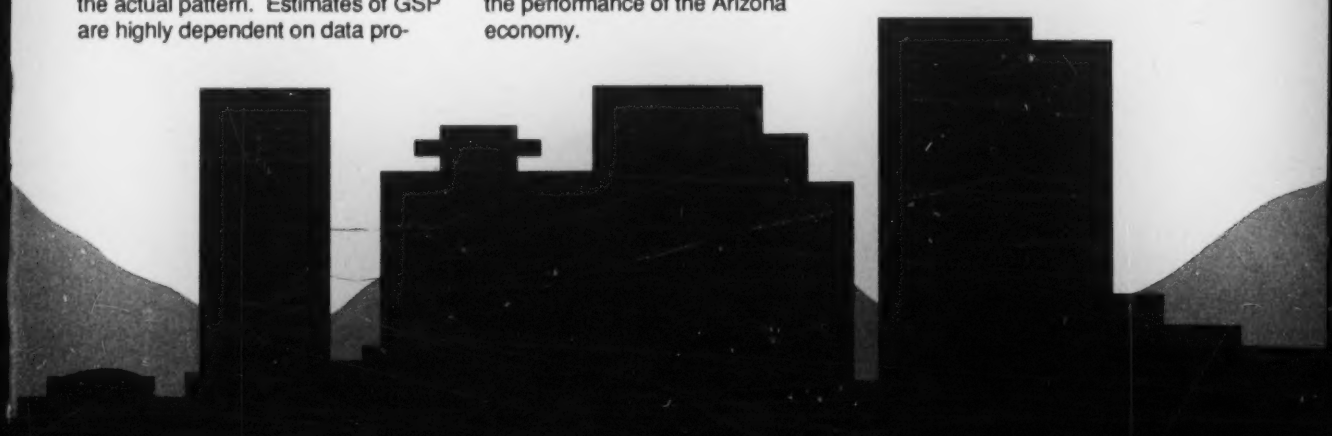
People have been flocking to Arizona for more than three decades. From three-quarters of one million in 1950 – fewer residents than living in the *city* of Phoenix today – Arizona's population had exploded to nearly 3.4 million at the end of 1986.

Migration, rather than net natural increase (the number of births minus the number of deaths), accounts for most of Arizona's population gains. However, migration to the state is not steady, ebbing and flowing with cyclical economic recessions and expansions. This variability of migration has affected the performance of the Arizona economy.

GSP-GNP COMPARISON

During the last 16 years, the state's economy, measured by Gross State Product (GSP), has grown twice as rapidly as the national economy, measured by Gross National Product (GNP). Real GSP growth averaged 5.5 percent per year between 1970 and 1986, while annual real GNP growth was just 2.7 percent. This wide differential is explained by the state's more rapid population growth, *not* by a more productive economy.

See "Growth," page 5



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rate, the quarterly pattern of personal income estimates is highly questionable. The discreoancies can be demonstrated through a step-by-step comparison of economic measures.

Employment, which already has been revised, is the base measure. The change in employment should correlate highly with the change in the wage and salary disbursements portion of personal income. As indicated in Table 2, this relationship did not hold during 1986. In particular, wages and salaries seem to be grossly underestimated for the third quarter, but slightly overestimated for each of the other quarters.

The next comparison adds other components such as proprietor's income to wage and salary disbursements to arrive at the earnings portion of personal income. Wages and salaries do correspond to earnings, as expected.

Earnings represent a large portion of GSP. Other components of GSP are measured indirectly, using ratios, in particular the proportion of national income to national personal income. If these ratios fluctuate randomly, GSP will not correlate strongly with earnings, as occurred during 1986.

To summarize, first quarter GSP growth is too high because both wages and salaries and the ratios were overestimated. Second quarter GSP growth probably is reasonably accurate, as the downward correction in the ratios was offset by the overestimate of wages and salaries. Because of the underestimate of wages and salaries, third quarter GSP growth is far too low. As in the second quarter, the fourth quarter figure probably is reasonably accurate, with lower ratios offsetting the overestimate of wages and salaries.

Subjective correction of these apparent measurement errors produces a completely different pattern of Arizona economic growth. Through the first three quarters of 1986, the Arizona economy probably gradually slowed, continuing the deceleration that began in mid-1984. In the fourth quarter, however, growth abruptly ceased.

The Arizona coincident index generally substantiates this pattern, indicating that expansion during the third quarter was more rapid than during the second quarter and that the Arizona economy declined slightly during the fourth quarter.

Subsequent revisions to personal income and GSP may correct the quarterly pattern. The net effect of the revisions probably will be slight, but the chance of upward revision to annual GSP exceeds the probability of lower estimates.

Sectoral Performance

The moderation of the Arizona economic expansion during 1986 can be traced particularly to two sectors. After three consecutive years of double-digit expansion – a typical cyclical occurrence – the gross product of the construction industry rose only a modest amount in 1986; it declined during the second half of the year. Of more importance because of its large size, the gross product of the trade industry experienced slower growth, dropping from a rate of 10 percent in 1985 to 3 percent in 1986. This deceleration alone caused one-half of the 2.5-percentage-point difference in total GSP growth between 1985 and 1986. The subpar performance corresponds with weak increases in trade employment and retail sales.

Most of the other sectors also expanded less rapidly in 1986 than in 1985 (see Figure I). The major exception was services, which held steady at a 7 percent rate. The finance, insurance and real estate industry led the expansion with a 9 percent rate. For the second consecutive year, the gross products of mining and agriculture declined.

SECTORAL SHARES

Before inflation-adjustment, the Arizona GSP totaled $51.4 billion in

TABLE 1
ECONOMIC GROWTH

	Arizona Gross State Product				Gross National Product
Quarter	*Billions of Current Dollars, Annualized*	*Billions of 1982 Dollars, Annualized*	*Annualized Percent Change (1982 Dollars)*	*Annualized Percent Change (Adjusted GSP)**	*Annualized Percent Change (1982 Dollars)*
First 1985	46.821	42.516	17.5	15.8	3.0
Second 1985	47.218	42.450	-0.6	3.2	2.3
Third 1985	48.319	43.089	6.0	7.5	4.1
Fourth 1985	49.134	43.548	4.3	5.0	2.1
First 1986r	50.802	44.850	12.0	10.6	3.7
Second 1986r	51.217	45.048	1.8	4.7	0.6
Third 1986r	51.623	45.080	0.3	0.2	2.7
Fourth 1986	51.846	44.902	-1.6	-0.9	1.1
Annual					
1983	37.821	36.251	5.7	7.9	3.6
1984	43.156	39.966	10.2	10.3	5.4
1985	47.873	42.901	7.3	8.3	2.7
1986	51.372	44.970	4.8	5.7	2.5

*The adjusted GSP is the annualized GSP in billions of 1982 dollars, minus the contributions of the agriculture and mining industries.

rRevised

Source: Center for Business Research, College of Business, Arizona State University; in cosponsorship with the ASU College of Business Dean's Council of 100. GNP data are from the U.S. Department of Commerce, Bureau of Economic Analysis.

1986. Four industries accounted for two-thirds of the total product, led by the $9.1 billion finance, insurance and real estate sector (see Figure II). Ranking second or third in size since 1970, this industry's rapid growth during 1986 made it Arizona's largest, measured by current dollar GSP.

Until 1986, trade consistently had been Arizona's biggest industry, but its below average growth last year caused it to slip to third place with a 16.7 percent share. Services, the second-largest industry with a 16.9 percent share, ranked fifth as recently as 1978. Manufacturing remained the fourth largest industry.

Government's gross product, the fifth greatest in 1986, continued to rise at a sluggish rate compared to those of most other industries. The smallest industries shrank further during 1986: agriculture's share of gross product dropped to 2.0 percent, and mining's portion declined to 2.7 percent.

DEFLATORS

Inflation measured by the Arizona GSP deflator slackened further in 1986 to 2.4 percent, the seventh consecutive deceleration since the 10.3 percent peak in 1979. The deflator measured less inflation in 1986 than in 1985 for each sector except agriculture, in which *deflation* was not as great in 1986 as in 1985.

This pattern of lower inflation corresponds with that of the GNP implicit price deflator (see Figure III). For the fourth consecutive year, the inflation rate measured by the GSP deflator was within four-tenths of one percentage point of the national rate.

EMPLOYMENT AND PRODUCTIVITY

Employment gains during 1986 were fewer than during 1984 or 1985; the rate decelerated from 10 percent in 1984 to 5 percent in 1986. As with GSP, the trade and construction industries were primarily responsible for the moderation, though employment gains were smaller in the manufacturing; government; and finance, insurance and real estate industries as well.

Late in 1986, new job creation ceased, as construction layoffs negated slight increases in most other sectors. Employment growth remained weak during first quarter 1987.

Inflation-adjusted output per employee has changed little since the mid-1970s (see Figure IV). Variations have been cyclical, with improvements during the early stages of a recovery and declines during recessions and later stages of an expansion. This cyclicality results from greater changes in production than employment. Though production may drop sharply during recessions, employers do not lay off workers as dramatically, knowing that they will soon be needed again.

During 1986, output per employee rose minimally, offsetting a slight

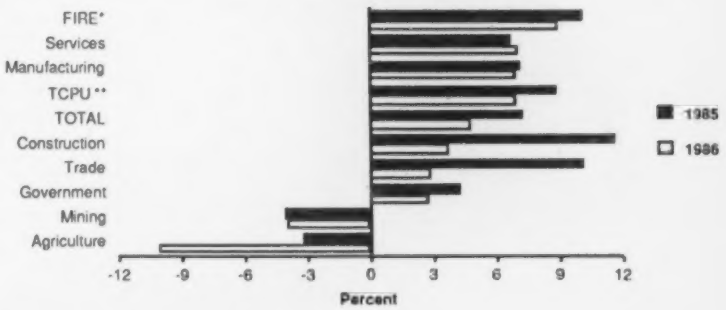
TABLE 2
COMPARISON OF MEASURES
Quarterly Percent Change

Quarter	Employment	Wages and Salaries*	Earnings*	GSP*
First 1986	1.5%	2.0%	2.3%	3.0%
Second 1986	0.7	1.0	1.2	0.4
Third 1986	2.1	0.0	-0.2	0.1
Fourth 1986	0.0	0.6	0.8	-0.4

*Inflation-adjusted

Source: Center for Business Research, College of Business, Arizona State University

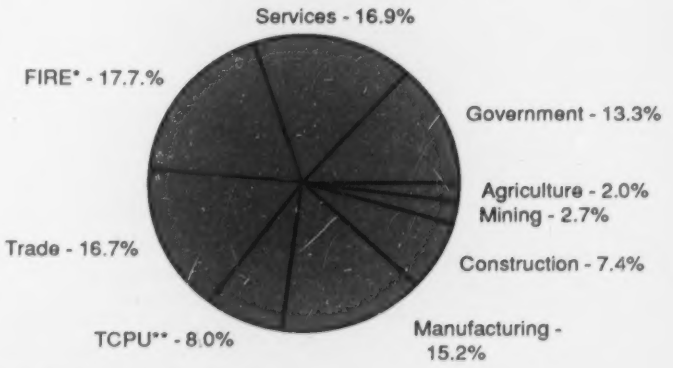
FIGURE I
REAL GSP GROWTH
By Sector, 1985-86



*Finance, Insurance and Real Estate
**Transportation, Communications and Public Utilities

Source: Center for Business Research, College of Business, Arizona State University

FIGURE II
ARIZONA GROSS STATE PRODUCT
1986 Sectoral Shares, In Current Dollars



*Finance, Insurance and Real Estate
**Transportation, Communications and Public Utilities

Source: Center for Business Research, College of Business, Arizona State University

loss in 1985. Since this gain varies from the typical pattern, it may indicate that GSP will be adjusted up by a small amount in future revisions.

The finance, insurance and real estate sector and the construction and services sectors typically have experienced declines in output per employee, but in 1986, construction recorded a small improvement. Productivity also increased in the manufacturing and mining industries and in the transportation, communications and public utilities industry. Mining again led the gains.

THE EXPANSION IN PERSPECTIVE

Having begun in late 1982, the expansion already was relatively old at the end of 1986. By late 1987, this expansion will be the longest on record during peacetime.

Total growth during the expansion, however, has not come close to the record. From the low in third quarter 1982, GSP had increased 33 percent by late 1986, well short of the 43 percent total gain of the slightly longer expansion during the late 1970s. Even the shorter expansion of the early 1970s registered more growth (35 percent).

The increase in adjusted GSP compares more favorably. In each year of this expansion, adjusted GSP growth has exceeded that of total GSP (see Figure V).

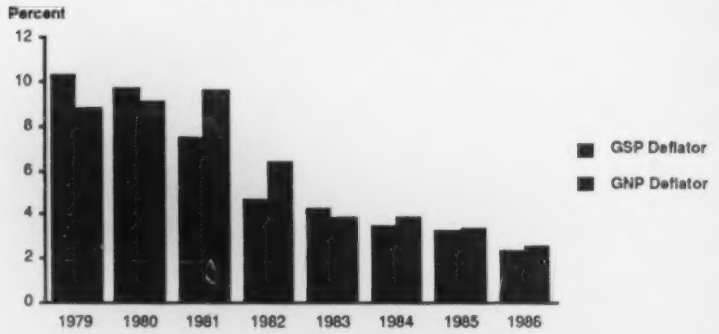
Compared to the Gross National Product (GNP), long-term average GSP increases have been twice as great. During the current expansion, the GSP has grown nearly twice as fast; adjusted GSP has increased more than twice as rapidly.

OUTLOOK

Barring substantial upward revisions to 1986 GSP, annual average GSP growth during 1987 almost certainly will be less than the long-term average of 5.5 percent. Compared to fourth quarter 1985, fourth quarter 1986 GSP was only 3.1 percent higher, a weak base from which to begin measurement of 1987 growth. Further, gains in GSP during first quarter 1987 probably were relatively weak, given the poor employment gains measured from January through March.

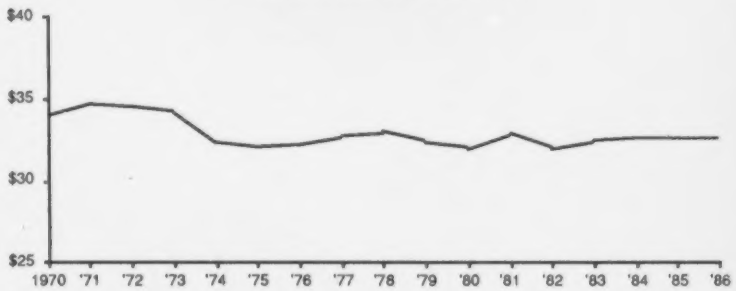
During the rest of 1987, economic growth probably will continue at a modest rate. The gross product of the construction industry, however, is likely to decrease; it already had declined between fourth quarter 1985 and fourth quarter 1986. Growth in most of the other sectors probably will be less in 1987 than in 1986. In each industry, the rate of increase between the fourth quarters of 1985 and 1986 was less than the 1986 annual average. Thus, total GSP may gain less than 4 percent during 1987.

FIGURE III
COMPARISON OF INFLATION MEASURES



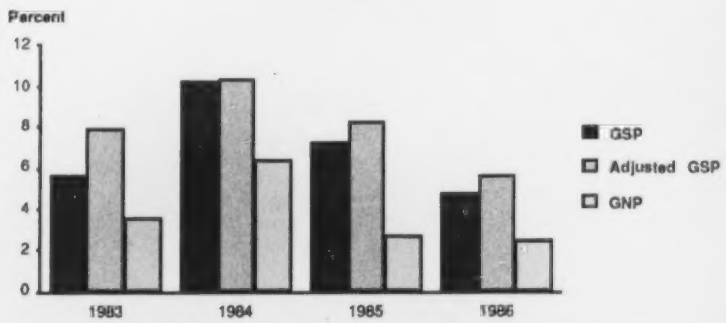
Source: Center for Business Research, College of Business, Arizona State University and U.S. Department of Commerce, Bureau of Economic Analysis

FIGURE IV
ARIZONA OUTPUT PER EMPLOYEE
In Thousands of 1982 Dollars



Source: Center for Business Research, College of Business, Arizona State University

FIGURE V
ARIZONA GSP AND U.S. GNP
Annual Percent Change



Source: Center for Business Research, College of Business, Arizona State University and U.S. Department of Commerce, Bureau of Economic Analysis

– **Tom R. Rex**
Research Manager

"Growth," from page 1

Dividing the gross products by their respective populations reveals that 1970-86 average growth in inflation-adjusted, per capita GSP was slightly less than that of real, per capita GNP (1.5 percent versus 1.6 percent per year). The cyclical variation, however, has been greater in Arizona than nationally. In particular, the state's per capita economic performance declined more sharply during the 1974-75 and 1981-82 recessions, while economic growth during boom periods has been more rapid than the nation's.

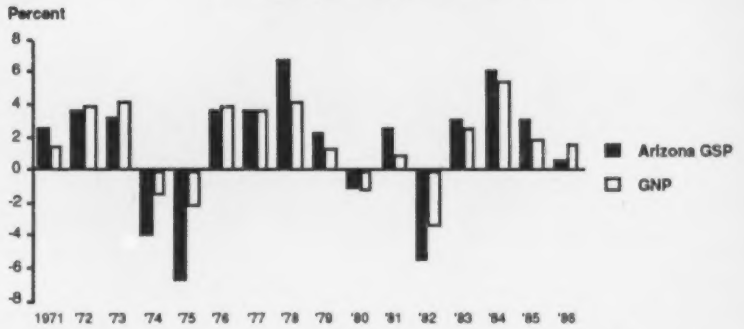
Figure I illustrates not only this cyclicality but also variation in the trend. During the early and mid-1970s, per capita growth of the Arizona economy trailed that of the national economy. Since the late 1970s, except during 1982 and 1986, the Arizona economy has outperformed the national economy, even on a population-adjusted basis. The state's disappointing performance during 1986, however, places the direction of the future trend in doubt.

Despite this more rapid growth in recent years, per capita GSP ($15,418 in 1986) is not even 90 percent of per capita GNP ($17,410). This proportion is lower than it was in 1970 (see Figure II).

Arizona's lower per capita gross product corresponds to its smaller proportion of working-age residents who are employed, compared to the national average. In addition, the state's industrial mix contributes to a lower per capita GSP. While generally not much different from the national mix, Arizona's industrial structure includes a smaller manufacturing sector, which pays more (and therefore has a higher GSP per worker) than most industries.

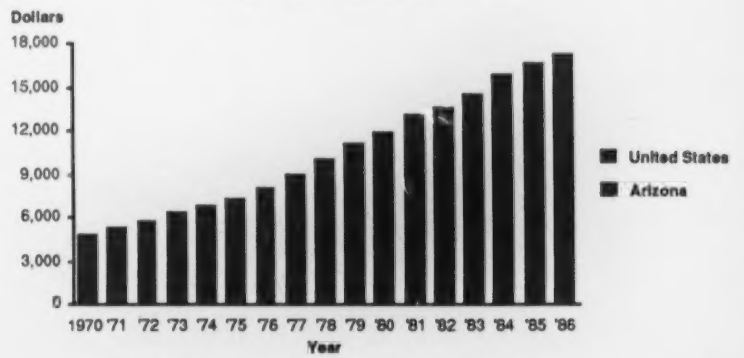
The relative level of GSP per resident has not been boosted much during the current economic expansion. Three consecutive years of record net in-migration explain most of Arizona's superior performance, as measured by real gross product.

FIGURE I
PER CAPITA ECONOMIC GROWTH
Inflation-Adjusted Percent Change



Source: Center for Business Research, College of Business, Arizona State University

FIGURE II
PER CAPITA GROSS PRODUCT



Source: Center for Business Research, College of Business, Arizona State University

PRODUCTIVITY

A comparison of output per employee reveals that the Arizona economy is not as productive as the national economy, an indication confirmed by the lower levels of per capita gross product in Arizona. In 1970, the state's output per employee nearly equaled the national average, but productivity in Arizona declined between 1970 and 1985, while it rose nationally (1985 is the latest year for which national data are available). Consequently, 1985 output per employee in Arizona was less than 90 percent of the national average.

The state's lower productivity may result, in part, from a different industrial mix, even within the major industrial groupings. For example, output per employee is relatively low in certain industries, such as services, that make up a larger share of the Arizona economy than the national economy. However, output per employee was lower in Arizona in every industry except mining and government, for which the measures equaled their national counterparts.

SUMMARY

Arizona's booming economy both causes and relies on population growth. Job creation and economic opportunity attract people to the state at the same time that people moving to Arizona create jobs both by attracting employers to the state and by consuming goods and services. Except when interrupted by national recessions, migration is somewhat self-perpetuating, as is Arizona's rapid economic growth. Take away population growth, and the state would no longer have a "boom" economy. Instead, inferior levels of productivity would place Arizona in a slightly laggard economic position.

– Tom R. Rex
Research Manager

Gross County Product

New Measure Reflects Urban-Rural Economic Disparities

Gross County Product (GCP) estimates clearly reflect the disparity of economic growth between Arizona's metropolitan and rural counties during the early 1980s. From 1980 through 1984, the adjusted real gross products of the urban counties rose 22 to 25 percent, but the growth rates in most of the non-metropolitan counties were less than one-half as much. In four counties, GCP declined.

Figures reported in this article should be considered preliminary, marking a first attempt to calculate GCPs in Arizona. A number of data deficiencies potentially detract from these GCP estimates (see box); nevertheless, the results appear to paint an accurate picture of economic performance during the early 1980s.

CURRENT DOLLAR GCP

With a gross product of more than $27 billion in 1984, Maricopa County contributed two-thirds of the total product of all Arizona counties. Pima County's GCP approached $7 billion. Of the non-metropolitan counties, only Pinal's GCP reached $1 billion.

During the four years ending with 1984, the GCP of Maricopa County rose 56 percent. Every other county's economic growth fell short of the state's overall 46 percent rate, though Pima County's pace was 43 percent. Of the outlying counties, Apache, Cochise and Coconino's GCPs increased the fastest, each at slightly more than 30 percent. In contrast, the gross products of counties dependent on mining and/or agriculture barely advanced. Greenlee County's product fell 5 percent.

SECTORAL SHARES

Most of the rural counties' economies are highly dependent on just a few industries, usually including government and perhaps mining and agriculture. Greenlee County represents the extreme, with 80 percent of its 1984 GCP derived from mining. Other counties with a disproportionate share of GCP contributed by one or two industries include:

- Apache – one-third from government
- Cochise – one-half from government (due to Fort Huachuca)
- Coconino – nearly one-third from government
- Gila – 40 percent from mining
- Graham – 30 percent from government and nearly 20 percent from agriculture
- Pinal – more than 35 percent from mining (down from more than 50 percent in earlier years) and 10 percent from agriculture
- Yuma – nearly one-fourth from agriculture, with an equal share from government

In contrast, the Maricopa County economy depends little on agriculture, mining or government. Only 10 percent of its GCP is derived from the latter, despite Phoenix's distinction as the seat of state government. Pima County's economy also is balanced among several industries.

REAL DOLLAR GCP

Adjusting for inflation is important in analyzing economic performance. For example, between 1980 and 1984, inflation accounted for more than one-half of the 46 percent growth in the sum of the current dollar GCPs.

Real GCP, however, does not necessarily provide the best measure of economic conditions because of the vagaries of the agriculture and mining industries. Each is highly volatile, with a gross product that frequently rises or falls contrary to the economic movement of other industries because of temporary changes in external factors (weather, government subsidies, international competition, etc.). The swings can be so extreme that they override the changes in the rest of the economy.

Further, because prices in each industry fell between 1980 and 1984,

Caution Urged in Using GCP Estimates

Various data and methodological deficiencies may reduce the usefulness and accuracy of the GCP statistics presented in this article. Calculation of GCP depends on personal income estimates of earnings by industry, provided by the U.S. Department of Commerce, Bureau of Economic Analysis.

Personal income series have several shortcomings. By county, data are available only annually, with more than a two-year lag. Temporarily, the situation is even worse. Because of currently in-progress benchmarking of all county personal income data, estimates for 1985 will not be available until next year, when a revised series for 1969 through 1986 will be published. Thus, GCP has been calculated for a limited time frame. Though theoretically the sum of the county products should equal Gross State Product, subsequent revisions to state personal income and to GSP make the sum of the GCPs unequal to the GSP reported in this issue.

Use of the personal income series creates other difficulties. When only a small number of employers exist in a particular county in a given year, earnings by industry may not be published to avoid disclosure of confidential information. In extreme situations, earnings for a specific industry may be negative in a local area for a short time, when total production expenses exceed total gross income plus wages, salaries and other labor income. In these cases, GCP is also negative.

Methodologically, GCP has the same shortcomings as GSP, which largely relate to indirect measurement. They may be more pronounced in a small area in which one or a few industries dominate. In particular, mining and agriculture gross product estimates resulting from the conventional methodology may be misleading.

After revised personal income figures become available next year, the Center plans to calculate GCP for the entire 1969-86 period. Alternative methodologies may also be examined at that time.

TABLE 1
GROSS COUNTY PRODUCT
Percent Change, 1980-84

County	Current GCP	Real GCP	Adjusted Real GCP
Apache	34%	6%	8%
Cochise	32	6	8
Coconino	32	5	5
Gila	1	-1	-13
Graham	11	-6	-6
Greenlee	-5	11	-21
Maricopa	56	25	25
Mohave	22	2	6
Navajo	28	14	4
Pima	43	19	22
Pinal	5	7	13
Santa Cruz	22	-2	-1
Yavapai	23	5	9
Yuma and La Paz	18	1	7
SUM OF COUNTIES*	46	20	22

*Not equivalent to the reported change in Arizona Gross State Product because of subsequent revisions to GSP.

Source: Center for Business Research, College of Business, Arizona State University

greater gains (or smaller losses) were measured in real dollars than in current dollars. Such a circumstance may disguise the true performance of local economies. For example, Greenlee County is highly dependent on copper mining, an industry that experienced considerable difficulty during the early 1980s. As a result, the work force shrunk and the remaining workers suffered from a reduction in wages, greatly affecting the local economy. Yet because the mines did not shut down for long and because of vastly improved productivity, the production of copper did not slow that much.

Thus, despite a decline in current dollar GCP between 1980 and 1984, Greenlee's real dollar GCP rose because of a healthy 21 percent increase in mining's real gross product; the decline in price was greater than the decrease in production. (In contrast, counties such as Pinal experienced many actual mine closures, with subsequent sharp declines in mining gross product, even after inflation adjustment).

Adjusted GCP

The 11 percent increase in Greenlee's real GCP between 1980 and 1984 is in sharp contrast to the 21 percent decrease in adjusted real GCP (excluding mining and agriculture). The gross products of each of the other seven industries declined. Thus, the adjusted measure probably better represents the economic conditions that prevailed in Greenlee County.

Gila County's real adjusted gross product also fell because of its reliance on mining. Although Graham County has little mining activity, many miners live and/or shop in its communities. Further, Graham County is a trade center for the slumping agriculture industry. Thus, the Graham GCP dropped (see Table 1).

The remaining rural counties suffered from other problems. In Santa Cruz County, 40 percent of the economy revolves around trade, mostly with Mexico. That country's economic problems and peso devaluations caused the Santa Cruz GCP to fall.

Despite adjusted real statewide growth totaling more than 20 percent between 1980 and 1984, the only economies that expanded at double-digit rates were those of the metropolitan areas and Pinal County. In unadjusted terms, Pinal's economic growth was slight, because of slumps in its sizable mining and agriculture industries. The rest of the economy, however, was able to shake off these problems because of the county's location between the two urban areas and its access to transportation. In particular, a commercial/industrial construction surge in Casa Grande boosted the local economy.

Analysis of the Economic Cycle

Adjusted real GCP reveals that the non-metropolitan counties suffered more from the 1981-82 recession than did the urban areas. Most of the rural counties experienced economic decline in both years, sometimes at double-digit rates. Only Pinal and Yuma Counties eked out slight gains in 1981. In contrast, Maricopa and Pima Counties had modest gains in 1981. Pima's adjusted real GCP was flat in 1982, and even the vibrant Phoenix area economy did not avoid a slight loss.

During the 1983-84 recovery, however, most of the rural economies performed better, with several of them growing at a faster pace than the metropolitan areas. For example, in 1983, the GCPs in Mohave and Yavapai each grew 10 percent, faster than Maricopa's 9 percent pace. In 1984, GCP growth in Mohave and Apache Counties exceeded that of Maricopa County, while the economies of Yavapai, Santa Cruz and Greenlee Counties all grew slightly slower, but still at a rate greater than that of Pima County.

Despite this relatively fast growth, the 1984 adjusted real GCP of several counties barely exceeded the 1980 value. For example, despite leading the state in growth in 1983-84, Mohave County's gross product was only 6 percent higher in 1984 than in 1980.

Not all counties participated in the strong recovery, however. In 1983, the GCP of Graham and Santa Cruz Counties declined while, in 1984, Gila GCP was flat.

OUTLOOK

The disparity in economic growth between the rural and urban areas of Arizona during the early 1980s probably was extreme, largely due to serious problems in the mining and agriculture industries. Though the difference may have narrowed by the mid-1980s, relatively slow growth in most non-metropolitan areas is likely to persist through the 1980s.

– Tom R. Rex
Research Manager

Home Sales Continue Upward Climb in First Quarter

First quarter 1987 home sales in the Phoenix metropolitan area were 10 percent higher than during first quarter 1986 (see Table 1), marking the seventh consecutive quarter in which sales exceeded the number of the year-earlier quarter.

Seasonally adjusted, the number of sales rose 4 percent between fourth quarter 1986 and first quarter 1987, to 16,460, a volume exceeded only in third quarter 1986. A record number of sales of existing townhouses and condominiums (2,780, seasonally adjusted) offset fewer sales of new homes, producing the quarterly increase. Resale townhouse and condominium sales accounted for 17 percent of all sales during the first quarter, a record proportion that is double the annual percentages for 1984 and 1985.

Continued declines in mortgage interest rates boosted sales. Rates for 30-year, fixed-rate, conventional loans dipped below 9 percent in February, their lowest level since early 1978. Some interest rates for adjustable-rate mortgages dropped below 7.5 percent.

MEDIAN HOME PRICE AND APPRECIATION RATE

Although the median sales price was lower in the first quarter than in the two preceding quarters, this relationship reflects the typical seasonal pattern. Seasonally adjusted, the median price rose 0.5 percent for the third consecutive quarter. Compared to first quarter 1986, prices were a moderate 4 percent higher.

After adjusting single-family resale prices for home size, the median price per square foot increased 3.0 percent between the first quarters of 1986 and 1987, making five consecutive quarters of annual advances between 3 and 4 percent (see Figure I). Price changes on townhouses and condominiums have been much more erratic.

This stability in the rate of housing price increases is substantiated by the appreciation rate. For single family homes, the quarterly rate remained 0.6 percent, placing the annual rate between the first quarters of 1986 and 1987 at 2.6 percent. Comparable appreciation rates for townhouses and condominiums were lower: a quarterly rate of 0.1 percent and an annual rate of 0.5 percent.

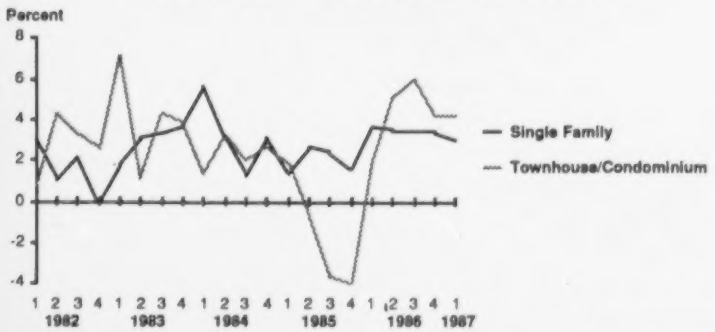
OUTLOOK

Second quarter 1987 home sales could advance slightly because of the two-month-or-longer lag from a change in mortgage interest rates until its impact on sales figures. Rising interest rates in early April signal that peak sales activity probably will occur during the spring.

Until April, most forecasters expected interest rates to rise only modestly during 1987. The volatility during April, however, makes those forecasts obsolete. Should 30-year, fixed-rate conventional mortgage rates stabilize at or below 10 percent, home sales during the second half of 1987 probably will remain near the levels of 1986 and early 1987. Higher interest rates should noticeably reduce the number of sales, much as they did during 1984.

– Tom R. Rex
Research Manager

FIGURE I
MEDIAN SALES PRICE PER SQUARE FOOT, RESALE HOMES
Percent Change from Same Quarter of Previous Year



Source: Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University

TABLE 1
METROPOLITAN PHOENIX HOME SALES

	Single Family			Townhouse/Condominium			Grand
First Quarter 1987	*Resale*	*New*	*Total*	*Resale*	*New*	*Total*	Total
Median sales price	$79,500	$94,500	$81,425	$64,500	$68,975	$65,000	$78,100
Percent change from:							
Fourth quarter 1986	0.6	2.8	-1.2	1.6	1.6	0.0	-1.2
First quarter 1986	6.0	7.1	4.4	2.4	-0.8	0.0	4.1
Number of sales	1,270	10,080	11,340	470	2,510	2,980	14,320
Percent change from:							
Fourth quarter 1986	-49	-4	-13	-33	25	10	-9
First quarter 1986	0	6	5	-13	51	35	10

Source: Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University; from data supplied by Marketron Services, Inc., Phoenix.

Housing Affordability Soars in First Quarter

Affordability of Phoenix area homes again jumped during first quarter 1987, with the index for new homes exceeding 100 for the first time since the indexes began in 1981. At 102, the index for new homes was 4 percent higher than in fourth quarter 1986 and 12 percent greater than in first quarter 1986. Comparable gains in the index for resale homes (122 in first quarter 1987) were 7 and 14 percent.

An index at or above 100 indicates that a median-income household is able to qualify for a median-priced home, assuming a 15 percent down payment on a fixed-rate, conventional, 30-year mortgage and an income qualification factor of 28 percent. During first quarter 1987, a median-income household could afford a $97,275 home – more than the median-priced new or resale home (see Table 1).

COMPONENT CHANGES

Throughout the 1980s, changes in mortgage interest rates have had a far greater impact on housing affordability than either increases in household incomes or variations in home prices (see Figure I). During first quarter 1987, the effective mortgage interest rate (contract rate plus fees and charges, or "points") dropped to 9.4 percent, 0.7 percentage points lower than in the previous quarter.

The affordability index for resale homes rose more than that for new homes, continuing a trend, because of a smaller gain in the median price of resale homes. Before seasonal adjustment, the quarterly increases in median price were 0.6 percent for resale homes and 2.8 percent for new homes.

As a result of the changes in interest rates and home prices, the monthly housing payment declined for new and resale homes. At the same time, household incomes rose, leading to surges in the affordability indexes.

NATIONAL AFFORDABILITY

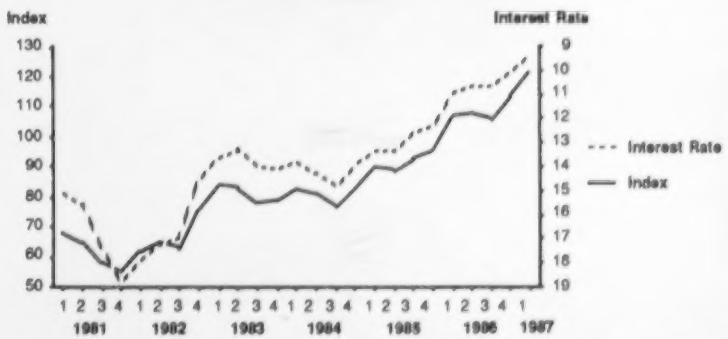
Affordability of homes nationally also improved during the first quarter. For new homes, the national index advanced by an amount similar to the increase in the Phoenix area, keeping the national index four percentage points lower. For resale homes, the improvement in affordability was not nearly as great nationally as in the Valley because of a much larger increase in the median sales price nationally. At 114, the national index for resale homes was a record amount lower than the Phoenix area index.

OUTLOOK

The sharp increase in mortgage interest rates at the beginning of the second quarter marks a sudden end to the improvements in housing affordability. Even if effective rates stabilize at the level prevailing in late April, exceeding 10 percent, the affordability indexes probably will fall back to levels similar to those of mid-1986. An index of 100 or better for new homes may prove to be a one-quarter occurrence.

– **Tom R. Rex**
Research Manager

FIGURE I
AFFORDABILITY INDEX, RESALE HOMES AND EFFECTIVE MORTGAGE INTEREST RATE
Metropolitan Phoenix, 1981-87



Source: Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University. Interest rates are from the Federal Home Loan Bank Board *News*.

TABLE 1
HOUSING AFFORDABILITY INDEXES
Metropolitan Phoenix

			Resale Homes			New Homes		
Quarter	*Median Gross Monthly Income*	*Effective Interest Rate*	*Median Sales Price*	*Monthly Housing Payment*	*Affordability Index*	*Median Sales Price*	*Monthly Housing Payment*	*Affordability*
1st 1986	$2,730	11.0%	$75,000	$710	107	$88,200	$840	91
2nd 1986	2,760	10.7	77,150	720	108	87,950	820	95
3rd 1986	2,800	10.7	79,150	740	106	88,850	830	95
4th 1986	2,840	10.1	79,100	700	114	91,900	810	98
1st 1987	2,890	9.4	79,500	660	122	94,500	790	102

Source: Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University. Interest rates are from the Federal Home Loan Bank Board *News*.

April Purchasing Indicators Up, Including Prices

The Arizona economy continued its strong upward course in April, moving toward the midpoint in its fifth year of expansion. Delivery time on vendor shipments lengthened; inventory levels rose; and new orders, production, and employment all enjoyed healthy increases. The only negative note was sounded by rapidly increasing prices, which almost certainly will create problems down the road.

The very positive performance this year by all of the major economic indicators likely will continue over the balance of the year. New order receipts, production rates, and employment should move up in the months immediately ahead. Much of the growth will be fueled by the need and willingness to rebuild inventories, which started at the beginning of the year. Prices will continue to increase, at a much higher rate than during the past few years.

Table 1 presents the results of the April survey of Arizona purchasing managers. Analysis of these results follows.

PRICES

Prices paid for major purchased items went up sharply in April. This was the highest month-to-month increase in close to three years (since June 1984). Evidently, some domestic producers, helped by the dollar's drop in value, are raising prices to boost profit margins. The sharp upward tilt in the price curve is warning that higher inflation rates soon will be back.

DELIVERY TIME

Delivery time on shipments from vendors grew longer, as this indicator experienced the largest monthly gain since May 1986. While no major shortages are evident yet, the acceleration in the economy continues to remove slack from vendor operating rates and may present major problems for Arizona buyers in the last half of 1987.

INVENTORY LEVELS

Inventory levels of purchased materials rose for the fourth consecutive month, although they were well under March levels. However, with the exception of March, it still was the highest jump in two years (since April 1985). Inventory rebuilding, as needed by the higher operating rates, will fuel further growth over the next several months.

NEW ORDERS

New orders received by Arizona firms registered a strong advance in April, but it was somewhat smaller than the March jump. The new order indicator has performed with consistent strength in each of the past four months, as increases surpassed those of any month in the second half of 1986. Higher levels of incoming business to Arizona firms will further stimulate the production and employment needed to service this new business.

PRODUCTION

Production experienced a good gain in April and at a rate only slightly less than in March. Both the March and April increases were larger than those of any month since February 1986, which attests to the strength of the current expansion.

EMPLOYMENT

Employment continued to grow and at a stepped-up rate to meet the higher production requirements. This was the fourth consecutive monthly increase, following on the heels of net employment declines during the last half of 1986.

PURCHASES

Purchases of materials and supplies went up in April at approximately the same rate as in March, when purchases grew at the greatest rate since May 1984. This higher level of purchases will further stimulate economic growth over the next several months.

– Harold Fearon

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

Arizona Purchasing Survey

Now in its 25th year of monthly reporting, Dr. Harold Fearon's survey of Arizona business conditions utilizes data from a questionnaire sent to members of the purchasing management associations of Arizona and southern Arizona. It asks them to indicate the direction of activity - higher, unchanged, or lower - of seven key measures of economic activity in the month just ended. These purchasing managers deal daily with supply, demand, and price factors in the marketplace; their aggregate readings have accurately charted the state's economic course for two decades, providing timely data on turning points.

TABLE 1
APRIL PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (April compared to March)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	37	60	3
Delivery time from vendors	27	66	7
Purchased materials inventory level	29	52	19
New orders received	43	35	22
Production	40	47	13
Employment	27	64	9
Purchases	52	34	14

Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona.

Arizona Leading Index Declines Again in March

The Arizona Index of Leading Economic Indicators declined a small amount in March, its second consecutive monthly dip, to 110.2, from a revised 110.4 in February (see Figure I).

One-half of the index components advanced in March, a proportion similar to those of the preceding several months. A diffusion index between 40 and 60 percent is indecisive, representative of neither a recessionary nor a strong expansionary period.

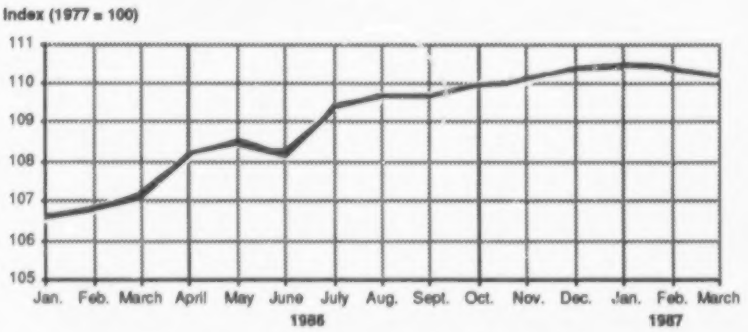
All of the indicators that gained in March were derived from a survey of Arizona purchasing managers, led by an increase in the purchased materials inventory level (see Table 1). The net gain in the five indicators was the largest in four years, but their level was barely higher than it was one year earlier.

Advances in these five components were offset by small declines in each of the other indicators. The national money supply (M2) recorded its second straight decrease, a rare occurrence except preceding and during a recession.

Residential building permits continue to fluctuate from month to month, but remained at a relatively high level in March. Hours worked in the manufacturing industry declined for the fourth time in the last five months, while the number of first-time unemployment claims rose, a negative indicator.

For the third consecutive month, the change in sensitive materials prices negatively contributed to the index. This indicator has varied in short cycles of approximately three months for the last two years; the losses during first quarter 1987 do not completely negate the gains recorded between October and December.

FIGURE I
ARIZONA INDEX OF LEADING ECONOMIC INDICATORS



Source: Center for Business Research, College of Business, Arizona State University

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution+			
	Dec.	*Jan.*	*Feb.*	*Mar.*
Delivery Time*	-.08	-.10	.08	.04
Inventory Levels*	.08	.03	-.01	.10
New Orders*	.11	.09	-.03	.07
Production*	-.04	-.01	.00	.06
Employment*	-.09	.10	.05	.01
Residential Building Permits	.17	-.19	.25	-.05
Unemployment Insurance Claims	-.27	.20	.01	-.13
Average Workweek, Manufacturing	-.12	.09	.07r	-.02
Money Supply	.32	.06	.21	-.12
Change in Sensitive Materials Prices	.14	.16	.19	-.11
OVERALL INDEX	.24	.13r	-.13r	-.17

rRevised

+The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Center for Business Research, College of Business, Arizona State University

OUTLOOK

The stronger economic growth that was signaled by the leading index during spring and summer 1986 never developed. Instead, the Arizona economy has remained relatively weak during early 1987, after slowing markedly in fourth quarter 1986. For example, following no change in employment during fourth quarter 1986, slight growth of 0.4 percent occurred during first quarter 1987.

Recent performance of the leading index suggests that the level of economic activity through late 1987 should remain stable. The chance of a recession, though greater than at any time during this economic cycle, remains less than 9 percent.

Future performance of the leading index likely will stay weak. The surge in interest rates in April probably will adversely affect residential building permits. The national money supply, which pushed the index up in 1986, has slipped into a slower growth phase. No other sector of the economy seems likely to boost Arizona's economic performance during the next several months.

– **Tom R. Rex**
Research Manager

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date Value	Year-to-Date Percent Change from Year Ago
GROSS STATE PRODUCT						
(In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	4th Qtr.	51.846	0.4	5.5	NA	NA
Arizona - 1982 Dollars	4th Qtr.	44.902	-0.4	3.1	NA	NA
CONSUMER PRICE INDEX (1977 = 100)						
Metropolitan Phoenix	1st Qtr.	198.0	2.3	3.3	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	March	110.2	-0.2	2.9	NA	NA
BUILDING PERMITS						
(Total Dollar Value in Thousands)						
Maricopa County	Feb.	267,919	-11	-16	570,073	-12
Pima County	Feb.	48,014	29	-47	84,960	-42
Balance of State	Feb.	39,159	-6	-11	81,079	-16
Arizona	Feb.	355,092	-6	-22	736,112	-17
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	Feb.	2,371	-13	-40	5,110	-30
Pima County	Feb.	585	-9	-34	1,231	-27
Balance of State	Feb.	696	-23	-47	1,602	-32
Arizona	Feb.	3,652	-14	-40	7,943	-30
HOME SALES						
Maricopa County - Number	April	4,920	-14	2	19,240	8
Maricopa County - Median Price	April	79,675	2.8	4.8	78,500	4.1
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	1st Qtr.	102	4.1	12.1	NA	NA
Metropolitan Phoenix - Resale Homes	1st Qtr.	122	7.0	14.0	NA	NA
MORTGAGE INTEREST RATES						
(Conventional, 30-year, Fixed-rate)						
Maricopa County	April	10.0	12.4	2.0	NA	NA
POPULATION ESTIMATES						
(In Thousands)						
Maricopa County	1st Qtr.	1,961	1.0	4.2	NA	NA
Arizona	1st Qtr.	3,422	0.9	3.6	NA	NA
ELECTRICAL POWER SALES						
(In Millions of Kilowatt Hours)						
Arizona	March	3,030	15.0	16.0	8,777	13.1

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University

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